FISCAL YEAR 1992 NOAA BUDGET REQUEST

HEARING

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENT

OF THE

COMMITTEE ON
SCIENCE, SPACE, AND TECHNOLOGY
HOUSE OF REPRESENTATIVES

ONE HUNDRED SECOND CONGRESS

FIRST SESSION

APRIL 11, 1991

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FISCAL YEAR 1992 NOAA BUDGET REQUEST

THURSDAY, APRIL 11, 1991

House of Representatives,
Committee on Science, Space, and Technology,
Subcommittee on Environment,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:30 a.m., in room 2218, Rayburn House Office Building, Hon. James H. Scheuer (chairman of the subcommittee) presiding.

Mr. Scheuer. The Subcommittee on Environment will come to order.

Today the Subcommittee on Environment will consider the fiscal year 1992 budget request for NOAA, the National Oceanic and Atmospheric Administration.

The Administration has requested a total of $1.59 billion in fiscal year 1992 for NOAA, an 8 percent increase over the fiscal year 1991 appropriation of $1.47 billion.

Significant increases were requested for the Global Climate Change Research program of $31 million, or 66 percent in that budget; $102 million addition to the Polar Orbiting Weather Satellite System, an increase of 200 percent—a budget of 200 percent, a doubling of their last year's budget; modernization of the Weather Service, an increase of 36 percent, or $55 million.

However, the budget request for the operations of the National Weather Service has been cut slightly, by $1.4 million. And this is particularly troubling to the subcommittee because we now understand that the National Weather Service has a budget shortfall of approximately $20 million in the current fiscal year.

As you know, last year we were faced with a prospect of closing down 132 Weather Service Offices due to lack of funding, and we really have no great zest for going through that painful process again.

I want to express at this point my personal thanks and sense of real gratification to Doctor Knauss and to all of the NOAA personnel for their tremendous efforts in obtaining increases for it's many important programs. We are impressed with their leadership and think they're on the right road.

We still, however, have concerns about recent developments in a number of areas; to wit: significant delays in the implementation of NEXRAD and the modernization of the Weather Service. I am unhappy about some of the interference that has taken place from others in the Commerce Department sort of meddling gratuitously with the work of NOAA in ways that I don't think are terribly constructive, and are going to be costly both in dollars and in human terms. Also we're concerned about the technical problems and cost overruns that the GOES Weather Satellite program is undergoing and, as I mentioned, the prospect of closing or reducing hours for the National Weather Service offices because of insufficient funding requests.

We, as a subcommittee, intend to do all that we can to support NOAA's proper leadership role in global environmental science.

NOAA, through the Landsat program, has already made tremendous strides in achieving a better understanding of Earth System Science.

If only NOAA would embrace the Landsat satellite system rather than continuously seeking to abandon it, then NOAA would be taking a giant step toward establishing its proper leadership role in global environment science. I wonder how much of the disinterest in that program emanates from the Commerce Department or from the Office of Management and Budget, rather than from the leadership within NOAA.

We are pleased to have Doctor John Knauss with us today. We stand ready to assist you, Doctor Knauss, and to strengthen your hand as Administrator of the National Oceanic and Atmospheric Administration.

I might add at this point parenthetically that for some time I have been concerned about the status of NOAA within the Department of Commerce. And I have been concerned that the numerous impacts from Commerce Department leaders and perhaps OMB leaders impacting the work of NOAA and interfering with what I believe is the excellent leadership that NOAA has benefitted from. Accordingly, I am currently drafting legislation to create an independent NOAA and establish it as an independent agency similar to the EPA or to NASA for that matter. This will reflect the importance of the mission of this very key Federal agency, it will reflect our confidence in its leadership, and it will reflect our dismay and unhappiness at interferences with the current leadership of NOAA from gratuitous and unnecessary, time-wasting, and support-eroding interferences, gratuitous emanations of negativism from elsewhere in the Department of Commerce and elsewhere in the Administration. And we will be dealing with that in the months to come.

When, as, and if members of the minority show up, I'll be happy to recognize them at an appropriate point. But now, to avoid any time-wasting, I'll recognize my colleagues as the first two witnesses—Congressman Tim Johnson of South Dakota, and Congressman Frank McCloskey of Indiana.

Would you please come to the witness table.

Mr. McCloskey. Good morning, Mr. Chairman, how are you today?

Mr. Scheuer. Good morning. Is Tim here? Okay.

Frank, why don't you take such time as you may need and give us your views, which we value very highly.

STATEMENT OF HON. FRANK McCLOSKEY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF INDIANA

Mr. McCloskey. Thank you very much, Jim. I really appreciate both your generosity and interest. Quite frankly, I was heartened by your statements of concern about something that strongly concerns me and many, many people in southern Indiana, Illinois, and Kentucky, indeed, our tri-State area. This is so important and such a pressing problem, I do want to beg indulgence to take five or six minutes to——

Mr. Scheuer. We welcome your contribution.

Mr. McCloskey. We have a prepared statement, Mr. Chairman, but just to——

Mr. Scheuer. Your prepared statement of course will be printed in full at this point in the record.

Mr. McCloskey. But before I do that, just to capsulize, to put it in a nutshell in four or five sentences, our area of southern Indiana and the immediate area of the tri-State is literally known and constantly has the experiences of being tornado alley. We constantly have about the worst tornadoes and severe weather in the Nation.

Mr. Scheuer. How did you fare in the last few days or a week?

Mr. McCloskey. Well, last week, I'm not aware of any major weather. But, if you remember, last year the Petersburg, Indiana tornado, which received international recognition as a major disaster, was right in the middle of my district—just to get to the point quickly—right in an area and abutting an area which much scientific and technological expertise says the present Weather Service NEXRAD wide area of radar plan will not cover.

In a nutshell, much of southwestern Indiana and Illinois, my area, and other parts of that area would be without coverage or with problematic coverage under the Weather Service's plan for NEXRAD Doppler location. Particularly, as you may know, Mr. Chairman, they plan to locate their main stations at Springfield, Indianapolis, Paducah, and Louisville. When you consider just what a severe weather area this is, we just simply have to get better response from the Weather Service than we're getting.

Also, they plan to close three of four significant weather stations in Indiana. Particularly, they plan to close the Evansville, Indiana Weather Station by 1996. If you notice, I mentioned Petersburg, which was a major disaster. Nearby, in that same tornado, in the area of Bedford, there was killed a 15 month old child, Benjamin Ray, swept from his mother's arms as they fled to the rear of their mobile home after hearing the roar of an approaching vortex. The child's father had both legs broken in that tornado.

Indeed, if I might mention this, on the map, as you can see, and my good staffer here, David Parry, can show you the present plans of the Weather Service.

Mr. Scheuer. Frank, why don't you stand up over there so that our friend Doctor Knauss——

Mr. McCloskey. Can David do that and I can——

Mr. Scheuer. Yes. Go and——

Mr. Johnson. Stand over there and help him——

Mr. Scheuer. Get a little closer. [Laughter.]

Mr. McCloskey. There is really substantial technological data which may be disputed by the Weather Service which we believe is good. It has been generated both locally and nationally. But if you notice the major area, Mr. Chairman, outside of those circles. Those circles represent the limits of 90 mile coverage, which is really probably the best coverage you're going to get out of those Dopplers right now. And if you notice the major green line going over, that is the route of a major tornado that hit Petersburg and Bedford. It has been one of the biggest disasters in the midwest in the last 15 years. So if you can see that and identify with my concern, as I know you do, Mr. Chairman, I'd appreciate it very, very much.

I'll summarize the major remaining portions of my statement, but I have been working on this concern for some years and I can honestly say there has been almost no issue since I've been in the Congress that has generated the continuing support from a broad range of citizens, community civic clubs. Obviously the electronic media, with their concern for the weather and weather prediction, is very, very concerned about this. But basically we haven't had much in the way of positive response from the Weather Service. They've been very polite, very courteous, but very, very nonconclusive as to our concerns; basically saying, I guess as late as today, that everything is going to work out. I just want to note that throughout this period the Weather Service has provided assurance after assurance to the tri-State area, as I've said, will be properly served by the overlapping radar arcs from Paducah, Louisville, and Indianapolis. At distances of 92 miles from Paducah, 100 miles from Louisville, and 162 miles from Indianapolis, many of my constituents and I question whether the Weather Service will be able to live up to these assurances.

Some years ago, with my cooperation and support, the Evansville area Chamber of Commerce helped charter a scientific survey which concluded that only the largest of vortex could be detected at ranges over 90 miles, that medium size vortexes could be detected at ranges up to 90 miles, and that small, but possibly intense and dangerous, vortexes could be detected reliably at distances of as little 30 to 40 miles. I've already referred to these maps. I think they do speak for themselves.

Also, I might call on David again to give you an idea of the damage and the impact. Just for one example, the Petersburg tornado, Mr. Chairman, that town, it was one of the saddest experiences of my life, was literally flattened. They lost half of that town; entire neighborhoods were just debris and memories in the aftermath of that tornado. Amazingly, very few fatalities. Several fatalities, which is amazing that hundreds of people were not lost in that particular tornado.

I believe you refer to some of these other national and systemic concerns, Mr. Chairman, in your opening statement. But as to ongoing problems that appear to be occurring in the NEXRAD program, the New York Times, in a January article, I will summarize, but serious delays, with all our concern about Doppler, has pushed back implementation. We understand now that installation will not begin in earnest till at least 1997. There has been computer programming difficulties, management problems, the manufacturer is alleged to have serious financial difficulties which will possibly propose contract fulfillment problems. There is National Weather Service staffing problems, 300 fewer National Service Weather employees presently employed than 10 years ago. And I believe he referred to satellite failures. And there has also been electronic thermometer complications that have forced the Weather Service to rely on aging radar systems that are becoming increasingly unreliable.

So, again, Mr. Chairman, thank you for your concern, but I just want to note that I am talking about a major problem and a major area of the country; it truly is a tri-State—Kentucky, Indiana, and Illinois. Besides the normal community survival and safety concerns, we do have a major and recently constructed airport with major air traffic coming in and out for that tri-State constantly.

We would hope to, quite frankly, get better cooperation from the Weather Service than we had. Last year, the Appropriations Committee subcommittee chairman, Mr. Lehman of Florida, was very helpful in getting appropriations language support that called on the Weather Service to work to resolve these very severe technical and substantive different conclusions that different experts are reaching as to the comprehensiveness of this coverage. And to the best of my knowledge, so far it is still an open question; it has not been resolved.

I, again, realizing your influence in these matters, would just thank you again for your continuing interest and support, Mr. Chairman.

[The prepared statement of Mr. McCloskey follows:]

TESTIMONY OF CONGRESSMAN FRANK McCLOSKEY
BEFORE THE HOUSE COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
SUBCOMMITEE ON THE ENVIRONMENT
REGARDING NEXRAD DOPPLER WEATHER RADAR AND THE NATIONAL WEATHER SERVICE MODERNIZATION PLAN

APRIL 11, 1991

MR. CHAIRMAN, ON THE EVENING OF JUNE 2ND, 1990, KILLER TORNADOES RIPPED THROUGH MY CONGRESSIONAL DISTRICT IN SOUTHWESTERN INDIANA KILLING EIGHT PEOPLE AND DOING MILLIONS OF DOLLARS IN DAMAGE. MORE THAN 50 TORNADOES WERE SITED THROUGHOUT INDIANA THAT NIGHT.

THE TOWN OF PETERSBURG, INDIANA SUFFERED SEVERE DEVASTATION. FIFTY MILES TO THE NORTHWEST OF PETERSBURG, IN THE TOWN OF BEDFORD, FIFTEEN-MONTH-OLD BENJAMIN RAY WAS SWEPT AWAY FROM HIS MOTHER'S ARMS AS SHE FLED TO THE REAR OF THEIR MOBILE HOME UPON HEARING THE ROAR OF THE APPROACHING VORTEX. LITTLE BENJAMIN WAS KILLED, AND HIS FATHER HAD BOTH LEGS BROKEN AS THE TORNADO TOTALLY DESTROYED THEIR HOME.

MR. CHAIRMAN, I APPRECIATE THIS OPPORTUNITY TO SPEAK TO YOU TODAY REGARDING AN ISSUE OF GREAT CONCERN TO MY CONSTITUENTS IN SOUTHWEST INDIANA, AND INDEED THE RESIDENTS OF THE INDIANA-ILLINOIS-KENTUCKY TRI-STATE AREA. THE IMPLEMENTATION OF THE NEXRAD PROGRAM, THE INTRODUCTION OF DOPPLER RADAR, AND THE PROPOSED CLOSING OF THE EVANSVILLE NATIONAL WEATHER SERVICE OFFICE HAVE RAISED SERIOUS QUESTIONS IN THE MINDS OF TRI-STATE RESIDENTS WHO ARE ALL TOO FAMILIAR WITH THE IMPACT OF VIOLENT WEATHER PATTERNS.

THE TRI-STATE AREA FALLS WELL WITHIN THE AREA KNOWN AS "TORNADO ALLEY," AND HAS BEEN THE SCENE OF MANY SEVERE WEATHER EVENTS. THE MOST RECENT EVENTS, IN ALLENDALE, ILLINOIS, FORT BRANCH, PETERSBURG AND BEDFORD, INDIANA, AND IN LOGAN COUNTY, KENTUCKY, WITNESSED WIDESPREAD DEVASTATION, EXTREME HARDSHIP AND LOSS OF LIFE. FEW WOULD ARGUE THAT THIS AREA OF THE COUNTRY DESERVES ANYTHING LESS THAN THE BEST WEATHER RADAR COVERAGE AND SEVERE WEATHER WARNING.

FOR THE PERIOD OF 1959 TO 1988, INDIANA RANKED FIRST AMONG STATES FOR TOTAL TORNADO DEATHS AND HAD THE HIGHEST FREQUENCY OF DEATHS PER 10,000 SQUARE MILES PER YEAR. DURING THIS SAME TIME PERIOD, INDIANA'S FREQUENCY OF DEATHS DUE TO TORNADOS IS MORE THAN DOUBLE THAT OF EITHER ILLINOIS OR KENTUCKY. INDIANA HAS HAD THE UNFORTUNATE DISTINCTION OF SUFFERING FROM THE THREE WORST TORNADO OUTBREAKS IN THIS CENTURY. YET DESPITE THESE FACTS AND FIGURES, THREE OF THE FOUR NATIONAL WEATHER SERVICE STATIONS CURRENTLY LOCATED IN INDIANA WILL BE DENIED DOPPLER RADAR TECHNOLOGY AND FACE EVENTUAL CLOSURE.

SINCE 1985, I HAVE SOUGHT THE INCLUSION OF THE EVANSVILLE NATIONAL WEATHER SERVICE OFFICE IN THE PROPOSED NETWORK OF DEPLOYMENT FOR NEW TECHNOLOGY DOPPLER RADAR. THROUGHOUT THIS PERIOD, THE NATIONAL WEATHER SERVICE HAS PROVIDED ASSURANCE AFTER ASSURANCE THAT THE TRI-STATE AREA WOULD BE PROPERLY SERVED BY "OVERLAPPING RADAR ARCS FROM PADUCAH, LOUISVILLE AND INDIAN-

APOLIS." AT DISTANCES OF 92 MILES FROM PADUCAH, 100 MILES FROM LOUISVILLE, AND 162 MILES FROM INDIANAPOLIS, MANY OF MY CONSTITUENTS AND I QUESTION WHETHER THE WEATHER SERVICE WILL BE ABLE TO LIVE UP TO THESE ASSURANCES.

THE WEATHER SERVICE CONTINUES TO BELIEVE THAT DOPPLER RADAR WILL ALLOW THEM TO RELIABLY DETECT TORNADOES AT DISTANCES OF 120 TO 125 MILES. KNOWLEDGEABLE EXPERTS, BOTH OUTSIDE OF AND WITHIN THE NATIONAL WEATHER SERVICE, DISPUTE THESE FIGURES. A TEAM OF NATIONALLY RECOGNIZED EXPERTS, COMMISSIONED BY THE METROPOLITAN EVANSVILLE CHAMBER OF COMMERCE IN 1987, CONCLUDED THAT ONLY THE LARGEST OF VORTEXES COULD BE DETECTED AT RANGES OF OVER 90 MILES, THAT MEDIUM SIZED VORTEXES COULD BE DETECTED AT RANGES UP TO 90 MILES, AND THAT SMALL, BUT POSSIBLY INTENSE AND DANGEROUS, VORTEXES COULD BE DETECTED RELIABLY AT DISTANCES OF AS LITTLE AS 30 TO 40 MILES. MORE RECENT FIGURES, QUOTED BY KNOWLEDGEABLE EMPLOYEES OF THE NATIONAL WEATHER SERVICE, PLACE THE RELIABLE DETECTION RANGE FOR MEDIUM SIZED VORTEXES AT UP TO 60 MILES. IF THESE FIGURES ARE CORRECT, AND I HAVE EVERY REASON TO BELIEVE THAT THEY ARE, THE GREATER EVANSVILLE TRI-STATE AREA WILL CONTINUE TO FALL VICTIM TO LESS THAN ADEQUATE RADAR COVERAGE UNDER THE CURRENT DOPPLER RADAR SITING PLAN.

I WOULD LIKE TO CALL YOUR ATTENTION TO A SERIES OF MAPS THAT I HAVE ATTACHED TO COPIES OF MY TESTIMONY THAT HAS BEEN DISTRIBUTED TO EACH OF YOU. THE FIRST MAP SHOWS THE LOCATION OF THE JANUARY 7TH, 1989 ALLENDALE, ILLINOIS TORNADO. NOTE THAT THE RELATIVE

DISTANCE FROM THE PROPOSED PADUCAH, KENTUCKY DOPPLER SITE IS 100 MILES, WELL BEYOND THE DEPENDABLE RANGE OF 60 MILES. THE ALLENDALE TORNADO WAS RESPONSIBLE FOR 50 INJURIES, 47 HOMES AND 10 BUSINESSES DESTROYED.

ON A SIMILAR MAP YOU WILL FIND THE FORT BRANCH, INDIANA TORNADO, LOCATED 90 MILES FROM THE PROPOSED DOPPLER UNIT AT PADUCAH. IN THIS APRIL 3RD, 1989 TORNADO, EIGHT INJURIES OCCURRED AND 38 HOMES WERE DESTROYED.

PERHAPS THE BEST EXAMPLE THAT I CAN OFFER FOR THE NEED FOR IMPROVED RADAR COVERAGE IS A MAP WHICH SHOWS THE JUNE 2ND, 1990 PETERSBURG/BEDFORD TORNADO PATH. THIS SERIES OF EIGHT TORNADOES TOUCHED DOWN AT DISTANCES OF 65 AND 110 MILES FROM PADUCAH, 85 AND 110 MILES FROM SPRINGFIELD, ILLINOIS, AND 80 AND 65 MILES FROM INDIANAPOLIS, ALL BEYOND THE 60 MILE RELIABLE DETECTION RANGE FOR MID SIZE VORTEXES. THESE TORNADOES RESULTED IN EIGHT DEATHS, MORE THAN 80 INJURIES AND MORE THAN $50 MILLION IN DAMAGE.

ADDITIONALLY, I WOULD LIKE TO DRAW YOUR ATTENTION TO SOME ACCOMPANYING NEWSPAPER PHOTOS WHICH SHOW DAMAGE FROM THE JUNE 2ND TORNADO. ALSO, FIND ATTACHED STATISTICS ON TORNADO OCCURRENCES, DEATHS, AND DEATHS PER 10,000 SQUARE MILES. FURTHER, I AM SUBMITTING A COPY OF THE STUDY ON DOPPLER WEATHER RADAR COMMISSIONED BY THE EVANSVILLE, INDIANA CHAMBER OF COMMERCE IN 1987; A COPY OF TESTIMONY I PRESENTED TO THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON TRANSPORTATION ON APRIL 24, 1990; AND COPIES OF MY PAST CORRES-

PONDENCE WITH OFFICIALS AT THE NATIONAL WEATHER SERVICE (NWS) REGARDING THE INCLUSION OF EVANSVILLE AS A DOPPLER SITE AND LOCATION OF A PERMANENT WEATHER FORECASTING OFFICE UNDER THE NWS's MODERNIZATAION PLAN.

IN ADDITION TO MY CONCERNS THAT EVANSVILLE BE INCLUDED AS A DOPPLER SITE, I FIND IT TROUBLING THAT STORM CLOUDS ARE NOW GATHERING OVER THE ENTIRE PROGRAM. THE NEW YORK TIMES IN A JANUARY 13TH, 1991 ARTICLE, OUTLINED NUMEROUS PROBLEMS THAT HAVE BECOME EVIDENT IN THE NEXRAD PROGRAM. AMONG THE MOST WORRISOME OF THESE DIFFICULTIES ARE THE FOLLOWING:

1. THAT SERIOUS DELAYS HAVE PUSHED BACK THE IMPLEMENTATION OF DOPPLER UNITS. INSTALLATION WAS TO BE COMPLETED BY 1996, YET THE TIMES INDICATE THAT THE INSTALLATION WILL NOT BEGIN IN EARNEST UNTIL 1997.
2. COMPUTER PROGRAMMING DIFFICULTIES HAVE PREVENTED ANY UNITS FROM BEING PLACED INTO SERVICE.
3. MANAGEMENT PROBLEMS WERE CITED, AND THE DIRECTOR OF THE NEXRAD PROGRAM HAS BEEN REPLACED.
4. AN INTERNAL REPORT CITED THE UNISYS CORPORATION, THE MANUFACTURER, AS EXPERIENCING SUCH SERIOUS FINANCIAL DIFFICULTIES THAT THERE IS A HIGH PROBABILITY THAT IT WILL NOT BE ABLE TO FULFILL THE CONTRACT AS SPECIFIED.
5. THERE ARE 300 FEWER NATIONAL WEATHER SERVICE EMPLOYEES AROUND THE COUNTRY THAN TEN YEARS AGO. FAILURE TO FILL VACANCIES IN ANTICIPATION OF A REDUCED DOPPLER WORKFORCE HAS DANGEROUSLY

REDUCED THE LEVEL OF STAFFING.

6. NEXRAD DELAYS, COUPLED WITH SATELLITE FAILURES AND ELECTRONIC THERMOMETER COMPLICATIONS, HAVE FORCED THE WEATHER SERVICE TO RELY ON AGING RADAR SYSTEMS THAT ARE BECOMING INCREASINGLY UNRELIABLE, AND FOR WHICH REPAIR PARTS ARE BECOMING INCREASINGLY MORE SCARCE.

THE TIMES REPORT ALSO CITED THE SHADYSIDE, OHIO, FLOOD AS AN EXAMPLE OF HOW THE REDUCTIONS IN WEATHER SERVICE STAFFING CAN RESULT IN THE LOSS OF LIFE. OFFICIALS WITH THE UNION REPRESENTING WEATHER SERVICE EMPLOYEES BELIEVE THAT REDUCTIONS LIKE THESE HAVE IMPAIRED THE AGENCY'S ABILITY TO ISSUE TIMELY WARNINGS. THE WEATHER SERVICE CONFIRMED THAT THE RADAR OUTSIDE OF AKRON, OHIO "WAS TOO WEAK TO DETERMINE THE EXTENT OF THE STORM" WHICH CLAIMED THE LIVES OF 28 PERSONS LAST SUMMER.

REPORTS SUCH AS THIS ONE DO LITTLE TO INSPIRE CONFIDENCE IN THE THE NATIONAL WEATHER SERVICE'S PROGRAM FOR MODERNIZATION. CLEARLY, ANY FURTHER REDUCTIONS IN WEATHER SERVICE PERSONNEL AND ANY PLANNED CLOSINGS OF STATIONS SHOULD BE PLACED ON HOLD UNTIL THE WEATHER SERVICE CAN PROVE THE EFFECTIVENESS OF NEW TECHNOLOGY RADAR SYSTEMS, AND CAN SUCCESSFULLY IMPLEMENT THESE SYSTEMS IN WEATHER STATIONS. IT IS EQUALLY CLEAR THAT MUCH WORK REMAINS BEFORE THE WEATHER SERVICE CAN ACCOMPLISH THIS, AND THAT MUCH ATTENTION MUST BE GIVEN TO KEEPING EXISTING RADAR UNITS FUNCTIONING, AND EXISTING WEATHER STATIONS OPERATIONAL.

RECENTLY, THE TRI-STATE RECEIVED THE NEWS THAT THE EVANSVILLE

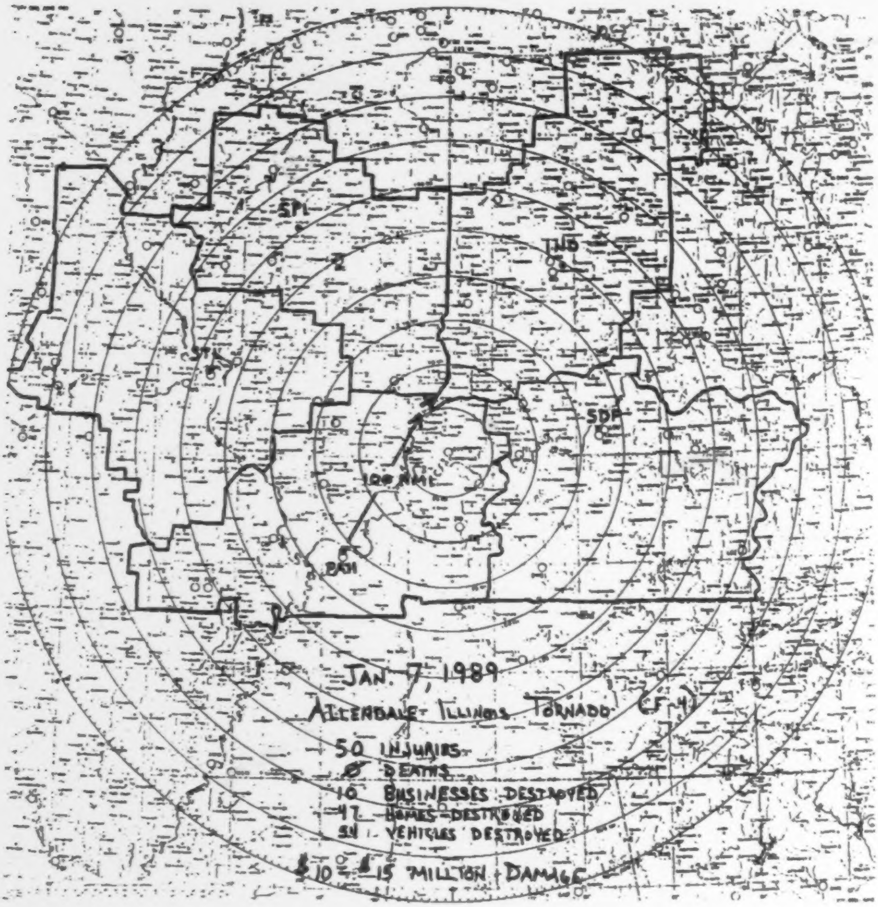
WEATHER SERVICE OFFICE WOULD REMAIN OPEN UNTIL 1996. WHILE THIS IS WELCOME NEWS, IT DOES NOT ADDRESS AREA CONCERNS THAT THE EVANSVILLE OFFICE SHOULD REMAIN OPEN PERMANENTLY. THE EVANSVILLE WEATHER SERVICE OFFICE HAS BEEN RECOGNIZED AS BEING IN THE TOP FIVE PERCENT OF OFFICES FOR RELIABLE SEVERE WEATHER DETECTION AND WARNING IN THE COUNTRY, IN SPITE OF RECURRENT BREAKDOWNS OF THE 1957 VINTAGE WEATHER RADAR THAT IS LOCATED THERE.

DESPITE THIS OUTSTANDING RECORD, THE NATIONAL WEATHER SERVICE IN WASHINGTON HAS CONTINUED TO EXCLUDE EVANSVILLE FROM RECEIPT OF AN IMPROVED RADAR UNIT AND THE DEPLOYMENT OF DOPPLER RADAR. THE CITY OF EVANSVILLE AND THE EVANSVILLE-VANDERBURGH AIRPORT AUTHORITY BOARD HAVE AGREED TO BUILD A NEW BUILDING FOR THE EVANSVILLE NATIONAL WEATHER SERVICE OFFICE AT A COST OF APPROXIMATELY $400,000, AND WILL BE BUILT TO SPECIFICATIONS THAT WOULD ALLOW FOR THE LOCATION OF DOPPLER RADAR EQUIPMENT AS PART OF A FUTURE EXPANSION. EVANSVILLE IS MAKING A COMMITMENT TO THE NATIONAL WEATHER SERVICE. IT IS TIME FOR THE NATIONAL WEATHER SERVICE TO MAKE A COMMITMENT TO EVANSVILLE AND THE CITIZENS OF THE TRI-STATE.

I CALL UPON THE ADMINISTRATOR OF THE NATIONAL WEATHER SERVICE AND THE MEMBERS OF THIS COMMITTEE TO REASSESS THE CURRENT SITING PLAN TO INCLUDE THE EVANSVILLE WEATHER SERVICE OFFICE IN DEPLOYMENT OF THE NEW DOPPLER RADAR TECHNOLOGY. UNTIL ACCTUAL DEPLOYMENT IS PRACTICAL, THE EVANSVILLE WEATHER OFFICE SHOULD BE UPGRADED TO FULL "WEATHER FORECASTING OFFICE" STATUS, AND SHOULD BE PROVIDED

WITH THE LATEST AVAILABLE RADAR TECHNOLOGY, AN 88D UNIT.

THE VIOLENT SEVERE WEATHER HISTORY OF THE TRI-STATE PROVIDES THE BASIS FOR UPGRADING THE EVANSVILLE WEATHER SERVICE OFFICE, AND FOR THE ADDITIONAL DEPLOYMENT OF DOPPLER RADAR TO EVANSVILLE. I RESPECTFULLY REQUEST THE ASSISTANCE OF THE MEMBERS OF THIS SUBCOMMITTEE IN MAKING IT POSSIBLE FOR THE TRI-STATE AREA TO RECEIVE THE BEST POSSIBLE RADAR COVERAGE AND WEATHER WARNING CAPABILITY THAT SCIENCE AND MAN CAN PROVIDE.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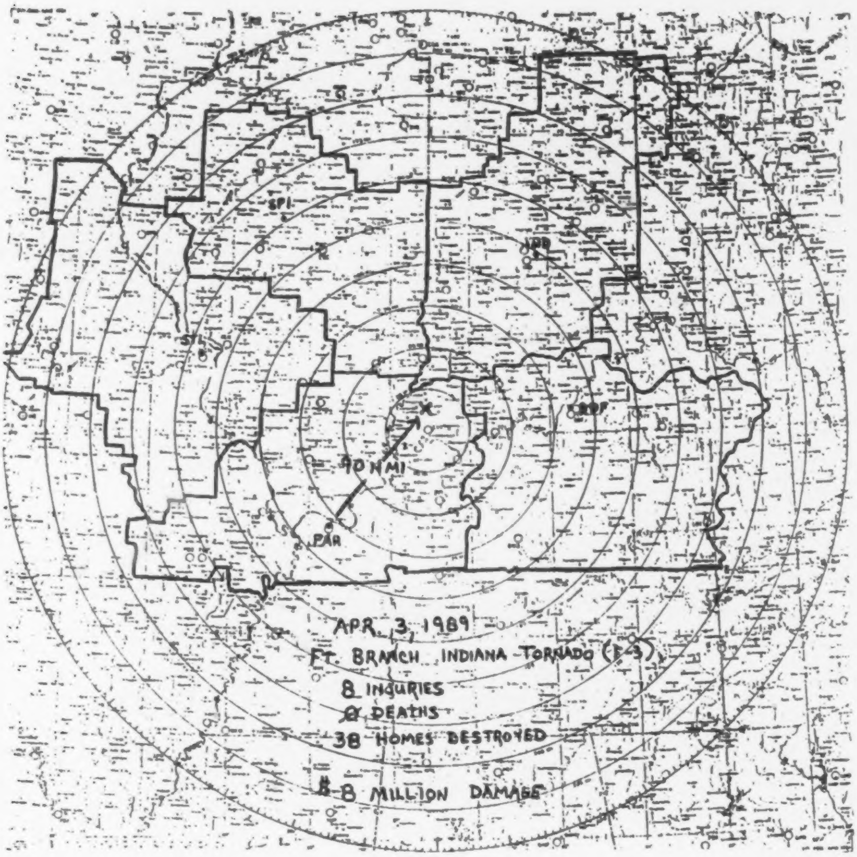
JAN. 7, 1989

ALLENDALE ILLINOIS TORNADO (F-4)

50 INJURIES
0 DEATHS
10 BUSINESSES DESTROYED
47 HOMES DESTROYED
54 VEHICLES DESTROYED

$10 - $15 MILLION DAMAGE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90 NMI

APR. 3, 1989

FT. BRANCH INDIANA TORNADO (F-3)

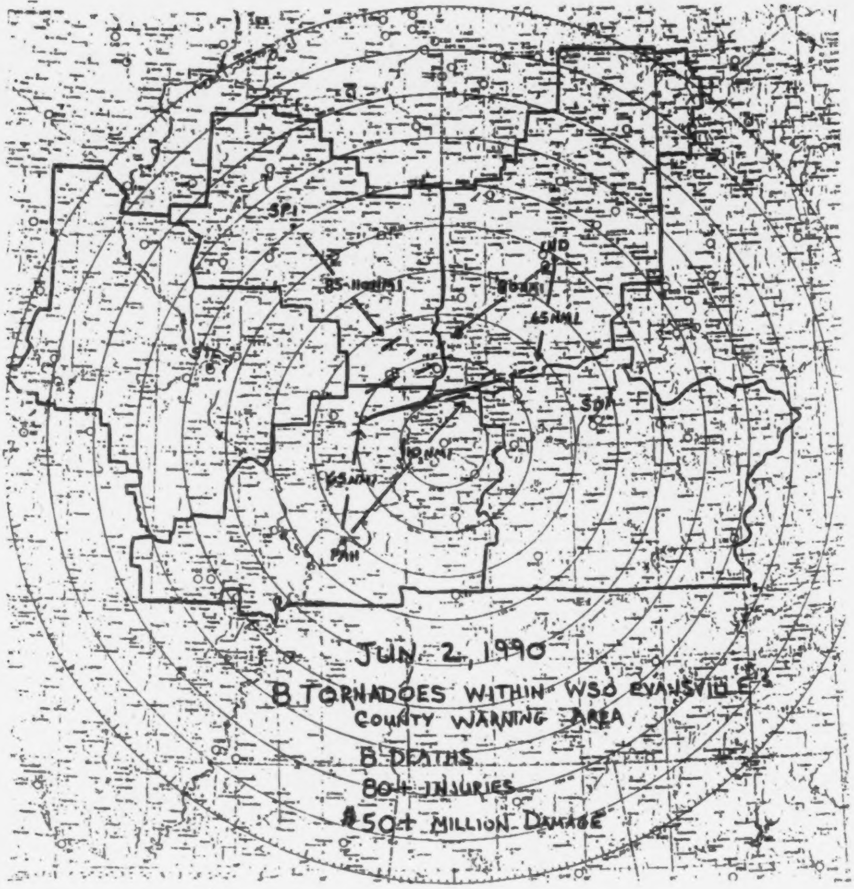
8 INGURIES

0 DEATHS

38 HOMES DESTROYED

$8 MILLION DAMAGE

APR 8 '91 11:41 EVV APR 8 '91 11:43 EVANSVILLE DIST OFF PAGE.1


SPI
85-110NMI
IND
80NMI
65NMI
STL
SDF
110NMI
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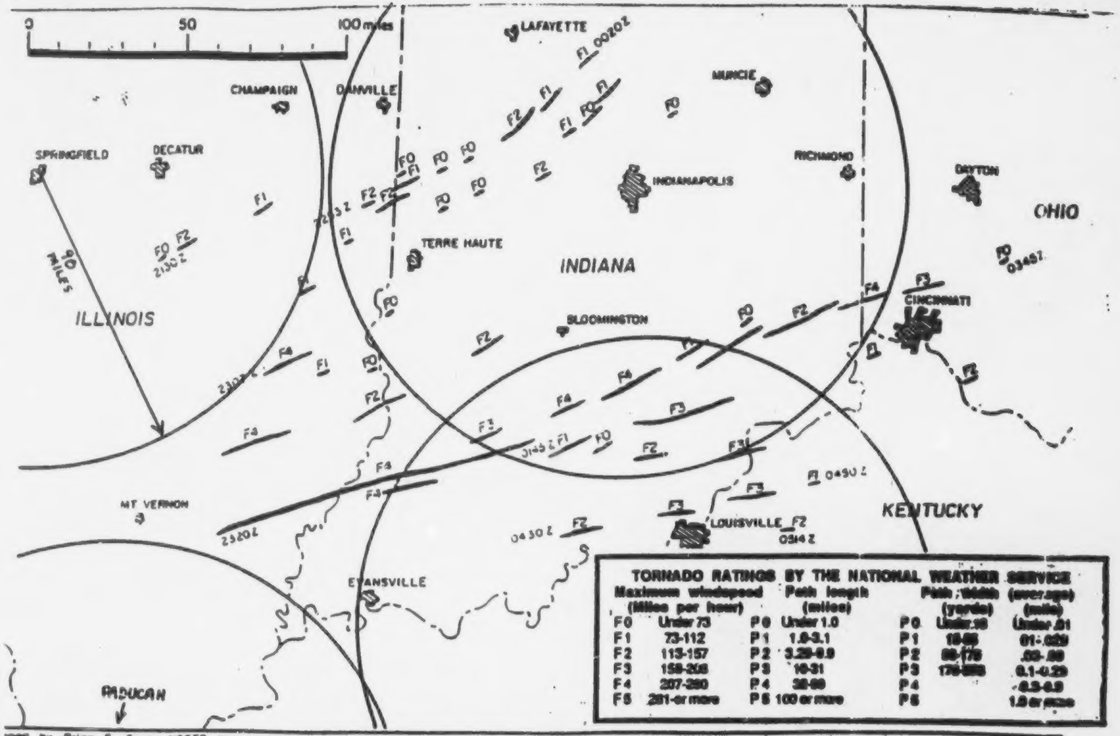
PAH

JUN 2, 1990

8 TORNADOES WITHIN WSO EVANSVILLE'S
COUNTY WARNING AREA

8 DEATHS
80+ INJURIES
$50+ MILLION DAMAGE


0
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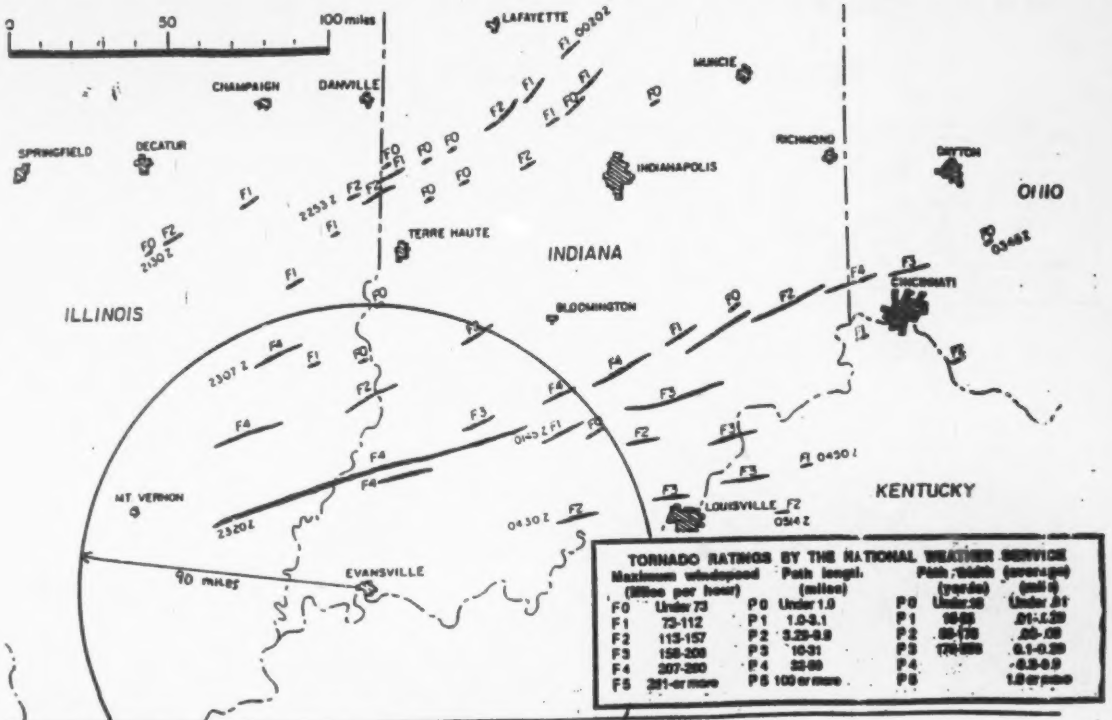
SPRINGFIELD
DECATUR
CHAMPAIGN
DANVILLE
LAFAYETTE
MUNCIE
RICHMOND
DAYTON
OHIO
INDIANAPOLIS
TERRE HAUTE
INDIANA
BLOOMINGTON
CINCINNATI
ILLINOIS
90 MILES
MT VERNON
EVANSVILLE
LOUISVILLE
KENTUCKY
PADUCAH
F1 0020 Z
F0 F2 2130 Z
2145 Z
2330 Z
2320 Z
2145 Z F1
0430 Z
0450 Z
0514 Z
0345 Z
F0
F1
F2
F3
F4

TORNADO RATINGS BY THE NATIONAL WEATHER SERVICE						
Maximum windspeed (Miles per hour)		Path length (miles)		Path Width (average) (yards)		(mile)
F0	Under 73	P0	Under 1.0	P0	Under 18	Under .01
F1	73-112	P1	1.0-3.1	P1	18-55	.01-.029
F2	113-157	P2	3.2-9.9	P2	56-175	.03-.09
F3	158-206	P3	10-31	P3	176-556	0.1-0.29
F4	207-260	P4	32-99	P4		0.3-0.9
F5	261-or more	P5	100 or more	P5		1.0 or more

by Brian E. Smith, NSSFC based on surveys and information from WSFOs and WSOs in IL, IN, OH, KY

JUNE 2, 1990 TORNADOES

CURRENTLY PLANNED NWS DOPPLER CONFIGURATION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SPRINGFIELD
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INDIANAPOLIS
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TERRE HAUTE
INDIANA
ILLINOIS
BLOOMINGTON
CINCINNATI
MT VERNON
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LOUISVILLE
KENTUCKY
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F1 0020 Z
2253 Z
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2307 Z
2320 Z
0145 Z F1
0430 Z
F1 0450 Z
F2 0514 Z
F0 0348 Z
F0
F1
F2
F3
F4

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F5	261-or more	P5	100 or more	P5		1.0 or more

…ped by Brian E. Smith, NSSFC based on surveys and information from WSFOs and WSOs in IL, IN, OH, KY

JUNE 2, 1990 TORNADOES

VIEW OF SAME STORM FROM PROPOSED EVANSVILLE SITE

COPIES OF CORRESPONDENCE BETWEEN REPRESENTATIVE FRANK McCLOSKEY AND ELBERT W. FRIDAY OF THE NATIONAL WEATHER SERVICE

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
Silver Spring, Md. 20910

FEB 2 1989

Honorable Frank McCloskey
House of Representatives
Washington, DC 20515

Dear Mr. McCloskey:

I recently met with Mr. Hasler of your staff who expressed your concerns regarding coverage of the tristate area by the Next Generation Weather Radar (NEXRAD) system.

As I promised Mr. Hasler in our meeting, I asked the NEXRAD Joint System Program Office to review the tristate siting plan. Based upon their firm technical recommendations, it is my judgment that the coverage objectives of the NEXRAD program are best achieved by locating the radar at Paducah. The Paducah site offers good low-level coverage over those regions prone to floods and tornadoes, satisfies enroute coverage requirements of the Federal Aviation Administration (FAA), and best supports the network configuration. Moving the site halfway toward Evansville would create a disproportionately large gap in coverage for southeastern Missouri at 4,000 feet above ground level (AGL) and would degrade FAA enroute coverage toward the west at 6,000 feet AGL.

The enclosed chart depicts the current NEXRAD siting plan for the tristate area. Evansville will lie well within the effective Doppler range of 230 kilometers or about 144 miles of the Paducah, Fort Campbell, Louisville, and Indianapolis radar sites. From the Paducah and Fort Campbell sites, Evansville will lie less than 150 kilometers or about 92 miles, a reliable detection distance for the rotating winds or mesocyclones from which tornadoes typically develop.

The Evansville Airport, like the city itself, will be well covered under the NEXRAD plan. However, low-level wind shear detection in the immediate airport vicinity is not a coverage objective in the NEXRAD design. A separate radar system, now being developed under the FAA's Terminal Doppler Weather Radar Program, will utilize special scanning strategies and NEXRAD-like technology to provide highly localized coverage for the airport.

This month the National Oceanic and Atmospheric Administration will submit to the Congress a long-range modernization and reorganization plan for the National Weather Service (NWS). New technologies to enhance delivery of weather services to the Nation will be outlined. This report will include plans for Indiana.

We appreciate your interest in the NWS and will keep your office apprised of new information as it becomes available. We believe that, once the NEXRAD network is fully deployed as planned, weather radar coverage for all communities in the tristate area will be substantially improved.

Sincerely,

Ronald D. McPherson
for
Elbert W. Friday, Jr.
Assistant Administrator
for Weather Services

Enclosure

FRANK McCLOSKEY
8TH DISTRICT, INDIANA

100TH CONGRESS

ARMED SERVICES COMMITTEE
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RESEARCH AND DEVELOPMENT
INVESTIGATIONS

POST OFFICE AND CIVIL SERVICE COMMITTEE
SUBCOMMITTEES:
CHAIRMAN: POSTAL PERSONNEL AND MODERNIZATION
HUMAN RESOURCES

Congress of the United States
House of Representatives
Washington, DC 20515

WASHINGTON OFFICE
[illegible] CANNON BUILDING
WASHINGTON, DC 20515
[illegible]

DISTRICT OFFICES
[illegible] MADISON
BLOOMINGTON, IN [illegible]
[illegible]

FEDERAL BUILDING, ROOM [illegible]
[illegible] SEVENTH STREET
EVANSVILLE, IN [illegible]
[illegible]

[illegible] 4TH STREET
WASHINGTON, IN [illegible]
[illegible]

March 13, 1989

Dr. Elbert W. Friday, Jr.
Assistant Administrator for
Weather Services
National Oceanic and Atmospheric
Administration
National Weather Service
Silver Spring, Maryland 20910

Dear Dr. Friday:

I am writing in response to your letter dated February 2, 1989, regarding my request for continued review of the Tri-State area for the installation of additional Doppler Radar equipment.

In your letter, you expressed confidence in the NEXRAD Joint System Program Office's recommendation for maintaining the radar antenna site in Paducah, Kentucky with no additional placement of equipment in the Tri-State area. I am concerned, however, about a number of points that you raised in your response.

Your letter indicated that the greater Evansville area would "lie well within the effective Doppler range" of 144 miles of Paducah, Fort Campbell, Louisville and Indianapolis, and that the City of Evansville would lie within 92 miles of the Paducah and Fort Campbell sites. It is my understanding, however, that the "effective range" of this new technology has not been thoroughly established through testing at the Norman, Oklahoma National Weather Service Office, and there remains considerable controversy over the "effective range" of this equipment to pick up mesocyclones of various sizes at the distances that you suggest. I would appreciate your office providing me with the National Weather Service's definition of "effective range" for the detection of various weather phenomena, and any projections that you may have for the effect on receptivity of detection of these events with increasing distance from the radar antenna site.

The response also suggests that movement of the antenna midway between Paducah and Evansville would create a "disproportionately large gap in coverage for Southeastern Missouri" at 4,000 feet above ground level, and that the Federal Aviation Administration

Dr. Elbert W. Friday, Jr.
March 13, 1989
Page two

enroute coverage toward the west at 6,000 feet above ground level would be compromised. While you provided a map with proposed coverage arcs for the Tri-State with your response, you failed to provide a similar map for proposed radar coverage of southeastern Missouri which could be reviewed as to its relation to coverage of the Tri-State. Furthermore, your references to 4,000 feet above ground level coverage and FAA enroute coverage are the first such references that I have seen which would suggest that these considerations have been criteria for site selection for radar and antenna sites.

I would appreciate your office providing me with a more detailed accounting of the importance of these criteria, with any and all instructions, guidelines or parameters that were given by the National Weather Service or NEXRAD Joint Program Office to S.R.I., International, or any other consultant retained in this regard, for locating the sites for placement of the Doppler radar units and antennas, as well as any and all reports produced by S.R.I. or any other consultant regarding the selection of sites for Doppler radar units and antennas, the rationale for such selections, and any specific reports that address the selection of the nearest 20 sites to Evansville. In addition, I would appreciate your office providing me with maps similar to the one you included with your February 2 response for those 20 sites.

Clearly, the Tri-State public cannot be reasonably assured of adequate coverage by the Doppler radar system until the results of testing of this new technology have been analyzed and then submitted to the public for review. To exclude continued consideration of the placement of an addition radar unit and antenna, or the movement of an antenna closer to the Tri-State would, therefore, appear both premature and ill-advised.

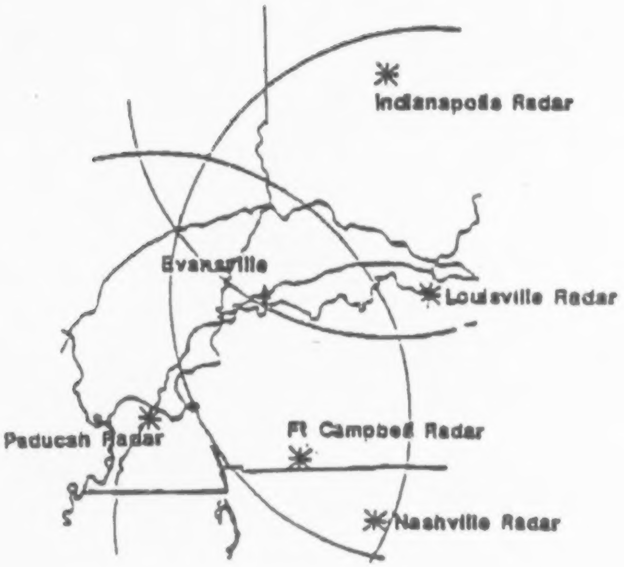
I would appreciate your prompt response to the above mentioned questions and request for materials, and, in light of the continuing concern of Tri-State area officials, business leaders and the public, your continued consideration of this area for additional Doppler radar coverage.

Sincerely,

Frank McCloskey

Frank McCloskey
Member of Congress

NEXRAD Coverage of the Tristate Area


Indianapolis Radar
Evansville
Louisville Radar
Paducah Radar
Ft Campbell Radar
Nashville Radar

FRANK McCLOSKEY
8TH DISTRICT, INDIANA

ARMED SERVICES COMMITTEE
PROCUREMENT AND
MILITARY NUCLEAR SYSTEMS
INVESTIGATIONS
DEFENSE POLICY PANEL

POST OFFICE AND CIVIL SERVICE
COMMITTEE
CHAIRMAN, POSTAL OPERATIONS
AND SERVICES
CIVIL SERVICE

FOREIGN AFFAIRS COMMITTEE

Congreſs of the United States
House of Representatives
Washington, DC 20515

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812-465-6484

10 N.E. FOURTH STREET
WASHINGTON, IN 47501-1904
812-254-8646

June 7, 1990

Dr. Elbert W. Friday, Jr.
Assistant Administrator for
Weather Services
National Oceanic and Atmospheric
Administration
National Weather Service
1325 East-West Highway
Silver Spring, MD 20910

Dear Dr. Friday:

This past weekend, devastating tornadoes struck in several counties in southwestern Indiana, causing 8 deaths, injuries to over 150 individuals, and as much as $100 million in damage. This was the most severe weather event in southwestern Indiana since the April 4, 1989 tornado that struck Ft. Branch, Indiana. I reiterate what I expressed to you at the time of the Ft. Branch tornado: the frequency of this type of weather in southwestern Indiana warrants the type of protection that can only be provided by a Doppler weather radar system.

It would seem, given the predisposition for tornadoes and other violent storms in southwestern Indiana, that it would be reasonable to place the best available technology in the most populous city in the region in order to ensure an expanded ability to detect these dangerous storms. Instead, Indiana, the State with the largest number of violent storms, is slated to have three of its four existing NWS stations, including the one in Evansville, closed down under the current NWS Modernization Plan. All of the facts indicate that this should not be the case.

As you are no doubt aware, the National Weather Service (NWS) has called the tornado outbreak of Saturday, June 2, the worst to strike Indiana in sixteen years. Over half of the roughly 100 reported tornado touchdowns that occurred in the Midwest that day were in Indiana. There were possibly as many as 15 tornadoes in southern Indiana alone, several touching down more than once. Indiana Governor Evan Bayh called the storm damage the worst he has ever seen and President Bush has declared 27 Indiana counties Federal disaster areas.

I cite this most recent round of tornadoes as yet one more instance of violent weather bringing death and destruction to

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Indiana. As I am sure you know, prior to this most recent storm event, there was the outbreak of April 4, 1974 that ripped through 11 midwestern states and left 43 dead in Indiana. Before that there was the 1965 outbreak that killed 270 in six midwestern states, including 143 in Indiana. Indiana is first in the nation in the number of damaging wind storms and has, in recent decades, ranked third in the nation in both numbers of tornadoes and numbers of tornado deaths per unit area. Since 1959, over 600 tornadoes have killed 210 Hoosiers.

It is because of these statistics that I question the decision to close the Evansville, Indiana NWS station, as is currently planned under the "Strategic Plan for the Modernization and Associated Restructuring of the National Weather Service." According to the Modernization Plan, this restructuring is based on several evolving technologies, such as the Doppler radar used by the Next Generation Weather Radar (NEXRAD). In fact, it is my understanding the planned configuration for installation of NEXRAD Doppler radar systems will be one of the key factors in determining which of the current NWS stations will remain open, and which ones will be closed down.

If NEXRAD is capable of detecting the formation of tornadoes within the full 125 mile radius claimed by the NWS, then the planned configuration of future NWS stations may be adequate in protecting the public in Indiana and other midwestern states. However, if NEXRAD cannot accurately detect the formation of tornadoes out to 125 miles, then much of the configuration of NWS stations to be established under the Modernization Plan will be inadequate. In fact, if the NWS's assumptions about the accurate range of NEXRAD are incorrect, much of the plan to close NWS facilities throughout the nation may be premature.

Two recent reports indicate that the NWS's assumptions about the capabilities of NEXRAD are indeed inaccurate. Studies by the National Weather Service Employees Organization ("Response to the Strategic Plan for the Modernization") and a group of Evansville meteorologists ("Report of the Advisory Panel on NEXRAD Capabilities") question whether NEXRAD can accurately detect the formation of tornadoes out beyond a range of 90 miles. These reports indicate that Evansville, Indiana and surrounding counties would fall within a gap in comprehensive radar coverage under the NWS's current Modernization Plan.

Although there is a difference of opinion about the exact range of a NEXRAD system, it is clear that this technology would be a significant improvement over existing NWS tornado warning systems. Certainly, one of its most promising features is its ability to substantially reduce false alarms. As you know, residents of "tornado alleys," such as southwestern Indiana, are less likely to seek shelter in their basements or abandon their homes if they have been subjected to too many false alarms.

I strongly urge that the National Weather Service consider the record, and the safety and well-being of the residents of southwestern Indiana, and install a NEXRAD Doppler weather radar system in Evansville, and ensure that the existing NWS weather station remain open.

Sincerely,

Frank McCloskey

Frank McCloskey
Member of Congress

FM/dp

cc: The Honorable William Lehman, Chairman
House Appropriations Subcommittee on Transportation

The Honorable James H. Scheuer, Chairman
House Science, Space and Technology Subcommittee on Natural Resources, Agriculture Research and Environment

The Honorable James L. Oberstar, Chairman
House Public Works Subcommittee on Aviation

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
Silver Spring, Md. 20910

[illegible]

W/MB32

Honorable Frank McCloskey
House of Representatives
Washington, DC 20515

Dear Mr. McCloskey:

Thank you for your letter regarding the planned Next Generation Weather Radar (NEXRAD) network for southwestern Indiana. This area's extreme vulnerability to dangerous weather has been a foremost consideration in the NEXRAD site selection process.

Operational testing of the NEXRAD preproduction model at Norman, Oklahoma, during 1989, demonstrated excellent Doppler-based meteorological data out to 230 kilometers or about 144 statute miles. Conventional reflectivity data of very high quality were obtained for strong storms at ranges of 460 kilometers or about 288 statute miles. The enclosed chart reflects the recent coverage analysis performed by our technical services contractor, SRI International. It shows the areas of coverage which the NEXRAD installations, located in and around Indiana, will provide at altitudes up to 10,000 feet above ground. These areas correspond very closely to the Doppler coverage which these radars will provide, based on NEXRAD's performance characteristics and the effects of surrounding geography. As we have mentioned in previous correspondence, Evansville lies well within Doppler range of four planned NEXRAD sites -- Paducah, Ft. Campbell, Louisville, and Indianapolis.

NEXRAD's precise detection range for a given meteorological phenomenon will depend on many factors including the local terrain, altitude, size, moisture content, drop or particle size, and wind velocities associated with the target phenomenon. Generally, severe thunderstorm and hail detection, as well as quantitative rainfall measurements, will be accurate out to about 230 kilometers or about 144 statute miles. Most mesocyclones, from which large tornadoes typically form, will be detectable out to about 150 kilometers or about 92 statute miles. Beyond these ranges, radar detection performance decreases gradually, as the earth's surface curves away from the radar beam.

Once the NEXRAD units and their associated Weather Forecast Offices (WFO) are deployed as a fully integrated network, areas of warning responsibility will be reconfigured accordingly. Telecommunications links will enable forecasters at a given WFO to access digital data directly and immediately from neighboring radars, as well as their own. A storm traversing the St. Louis coverage area, for example, could be monitored by the Paducah office. In this way, multiple views from adjacent radars will be available to help detect and track severe weather disturbances.

Each WFO staff will include a warning coordination meteorologist whose primary responsibility will be to work closely with state and local governments, emergency management agencies, the agricultural community, fire fighters, aviators, the news media, the public, and volunteer spotter networks, such as Skywarn.

NEXRAD is one of several weather surveillance and data processing systems scheduled for deployment in this decade. National Weather Service (NWS) modernization will include satellite, upper air, and automated surface observing systems; the Advanced Weather Interactive Processing System which will integrate data from these sources to provide early warnings; improved global and long-term forecasting capabilities at the National Meteorological Center; and larger, better equipped field offices.

These new technologies will allow some field offices of the NWS to be reorganized and consolidated. Where existing NWS offices will be phased down as a result of consolidation, Public Law 100-685, enacted last year, requires the Secretary of Commerce to certify to the Congress that NWS modernization and restructuring will not degrade weather services, including those pertaining to public safety or emergency preparedness. The Secretary's certification will be supported by a multisite operational demonstration of the newly installed systems, including NEXRAD. Each fiscal year a National Implementation Plan, which details near-term changes and updates long-term proposals, will be submitted for congressional review.

We appreciate your interest in the NEXRAD program. When the NWS is fully modernized as planned, all communities in southwestern Indiana, especially Evansville, can expect uniform and substantially improved weather radar coverage in the 1990's.

Sincerely,

Elbert W. Friday, Jr.
Assistant Administrator
for Weather Services

Enclosure

FRANK McCLOSKEY
8TH DISTRICT, INDIANA

ARMED SERVICES COMMITTEE
PROCUREMENT AND
MILITARY NUCLEAR SYSTEMS
INVESTIGATIONS
DEFENSE POLICY PANEL

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CHAIRMAN: POSTAL OPERATIONS
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Congress of the United States
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10 N.E. FOURTH STREET
WASHINGTON, IN 47501-2804
812-254-8646

March 8, 1991

Dr. Elbert W. Friday, Jr.
Assistant Administrator for Weather Services
National Oceanic and Atmospheric Administration
National Weather Service
1325 East-West Highway
Silver Spring, MD 20910

Dear Mr. Friday:

With the advent of spring, so another tornado season has begun in Indiana, where statewide drills were recently held.

As you know, I remain committed to the inclusion of Evansville, Indiana as a site for a NEXRAD Next Generation Doppler Weather Radar System. I also maintain that the National Weather Service (NWS) should completely reverse its current plans to close down its office in Evansville as part of its modernization plan, and should instead immediately designate Evansville as a Weather Forecasting Office under the new modernization plan.

I realize the NWS has always maintained that, as stated in P.L. 100-685, no weather station may be closed down before it can be proven that there will be no reduction in the quality of service. However, based on information from an article which appeared in the New York Times on January 13, 1991, I am very concerned that the NWS will not be able to meet that standard.

Please find enclosed a copy of the Times report, which indicates that implementation and installation of the NEXRAD System has fallen substantially behind schedule, that it has been subject to cost overruns, and that the primary contractor may not be able to fulfill the contract. These delays, coupled with premature reductions in the NWS staffing in anticipation of the new NEXRAD System, and the aging condition of the current radar, represent a grave threat to the NWS's ability to issue the weather warnings necessary for adequate public safety. I share the concerns expressed in the Times article.

I was pleased to learn that the NWS has decided to keep the Evansville office open for another five to ten years due to apparent delays in the implementation of the modernization program, rather than to close it in 1994, as was planned earlier.

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However, you can be certain that during that time I will continue to work with Congress to push for the Evansville NWS office to remain open permanently.

I am, of course, already on record as questioning the NWS's assessment of the accurate range of its new NEXRAD System. As a result of my testimony before the House Appropriations Committee's Subcommittee on Transportation on April 24, 1990, that Committee ordered the Federal Aviation Administration to work closely with the NWS to communicate and resolve these concerns, and to report the results when they are available.

While we all look forward to a more complete assessment of the capabilities of the new NEXRAD System, I also remain concerned that the NWS will, as has been repeatedly stated by NWS employees, continue to overstate those capabilities. The NWS is confident that the NEXRAD System is so superior to existing technology that it will be better able to predict weather in the Evansville area from distances of one hundred miles or more, than can be done currently for the existing Evansville NWS office.

I am skeptical of that claim, having also heard range estimates which are substantially less than the ranges for the reliable detection of severe weather quoted by the NWS. Further, even if the NEXRAD System proves as effective as is now claimed by the NWS, how can the NWS justify diluting the effectiveness of such a superior technology by locating it so far away from an area which experiences tornadoes and violent wind storms so frequently?

Again, I strongly urge that the NWS reconsider its plan to eliminate the existing NWS office in Evansville. The NWS should instead include Evansville among those areas to receive the new NEXRAD System technology and make permanent the NWS Weather Forecasting Office located there.

Sincerely,

Frank McCloskey

Frank McCloskey
Member of Congress

FM/dp

Mr. **Scheuer**. Well, thank you very much for your testimony. You have given us a sort of a worst case scenario for the National Weather Service. We hope it won't be that bad and we're going to work very hard to make sure that it isn't that lengthy a process. We have had formal talks and informal talks with Doctor Knauss and I feel sure that he's going to do the best he can to limit the delay. But the potential is there and it is going to take unremitting and continuous and systematic pressure from the Congress, of the kind in which you've made a very positive contribution this morning, to make sure that we do reduce these delays to the irreducible. And we're going to be working on that very hard.

Congressman Tim Johnson.

STATEMENT OF HON. TIM JOHNSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF SOUTH DAKOTA

Mr. **Johnson**. Thank you, Mr. Chairman. I do appreciate this opportunity to testify before you today on the subject of closing National Weather Service forecasting stations.

There's an obvious and urgent need to upgrade the weather station facilities across our Nation to enable us to forecast large and small-scale weather phenomena. And your leadership of——

Mr. **Scheuer**. Excuse me a moment.

Congressman McCloskey, if you have the flexibility in your program to come up here and sit with me for a few minutes. Doctor Knauss is going to be the next witness and I would be very happy to have him subject to your interrogation. Let him satisfy you personally.

Mr. **McCloskey**. My positive statements of concern.

Mr. **Scheuer**. Right. And I might say that I asked David to show the chart to Doctor Knauss. Inadvertently, I wasn't able to see any of those green lines and yellow lines, so it is best, since I don't really understand the details and I wasn't in the loop there, that the two operator responsible people who are in the loop have a chance to engage in some bilateral talks here. Okay?

Mr. **McCloskey**. Thank you.

Mr. **Scheuer**. Excuse me. Continue.

Mr. **Johnson**. Thank you, Mr. Chairman. And, again, thank you for your leadership and the leadership of this committee relative to weather forecasting in this country. I am in favor of seeing this modernization of technology used to predict the weather, but my concern is any upgrade or modernization that would eventually leave areas of our Nation unprepared and unprotected from the vagaries of nature.

There has been a lot of concern in my State of South Dakota over the negative impact surrounding the closing of the National Weather Station in Huron. The Weather Service's plan to install Next Generation Radar system at other sites around the State and close the Huron station appears to many of us to be flawed because it would leave an area in south central South Dakota totally uncovered. The Weather Station Office in Huron is the primary warning office for 18 counties and shares warning responsibility for 13 counties with the Weather Station Office in Aberdeen, South Dakota.

The Weather Service plans to modernize the Sioux Falls and Aberdeen offices and have their offices take responsibility for this area. Unfortunately, this will leave a large portion of south central South Dakota completely uncovered. I have copies of maps available at the back of my testimony and, with your approval, I would summarize my testimony but submit the full testimony for your committee's record. On the back of the testimony that is submitted to you is our maps. You can see the current coverage provided by Weather Service Offices in Sioux Falls, Huron, and Rapid City. On the second map is the projected coverage that would be provided by the upgraded weather stations. Clearly visible on Map 2 is the large portion of the State which would be without coverage.

This is a scenario that is not unique to South Dakota; it would happen in some instances all around the country. The Administration has decided——

Mr. SCHEUER. Excuse me, Congressman. I think somebody ought to show those maps to Doctor Knauss. I hope you will join us up here.

Mr. JOHNSON. Very good.

Mr. SCHEUER. I think he is going to reassure you. I've had conversations with Doctor Knauss privately and publicly that have been very reassuring as to the continuity of service. I don't think there are going to be any gaps. But this is a subject that you and he ought to discuss and you should be satisfied from him. He's the top banana over there. So if you could have somebody show Doctor Knauss and his aides your maps, he will be in a position to respond with a little bit more knowledge.

Mr. JOHNSON. Well, we will provide those maps, and we have been in ongoing communications with the Weather Service so we have had some detailed discussions, in fact, public meetings that the Weather Service has participated at in Huron, where we've had literally hundreds of people in attendance. This has been a subject of intense concern and interest.

Mr. SCHEUER. Are you mostly concerned with the coverage of the area in terms of protection or are you mostly concerned with employment, the loss of employment as NEXRAD, which is more cost-effective and may make possible the reduction of personnel, may displace some people out there? Which is your concern?

Mr. JOHNSON. Well, the concern has to be coverage. Obviously, it would not be accurate to say that there is no concern in the community about employment. But I think we recognize that the function of the Weather Service has got to be to provide weather information. We cannot rely on them simply as a jobs program, whether it's the Weather Service, our military bases, or whatever. And we recognize that from time to time some realignment is probably inevitable and necessary. So our concern has got to be with coverage.

Mr. SCHEUER. Very good. Very good.

Mr. JOHNSON. There is, as you know, a substantial reduction in the number of weather stations around the country from 250 to 115 planned. Our ongoing concern has got to be whether in fact gaps in coverage may occur. That is not to say that the overall level of coverage wouldn't be significantly improved by the NEXRAD system, but only to say that, despite the net gain, that there may be some areas where a lack of coverage would occur.

I am, in fact, introducing legislation which would require—not to block NEXRAD certainly, but provide that when a National Weather Service office or a National Weather Service Forecast Office located at an airport is not closed unless a full air safety appraisal is conducted. And while everyone relies on accurate weather forecasts to plan ahead on many aspects of their lives, reliable weather information is absolutely paramount relative to aviation. And in a State like ours, which is an immense State in terms of area, where small airplane traffic is a way of life, anything which contributes to a lack of Weather Service information can lead to disastrous accidents.

So I would like in closing to simply make a couple of recommendations to the committee which I think would help keep modernization on track and at the same time maintain the current safety levels provided by the current Weather Services offices.

The first recommendation is that there be effected a moratorium on any plans of the National Weather Service to close Weather Service Office or Forecast Offices unless and until the safety requirements of at least small aviation is passed and are satisfied. Second, of course, I would always invite the Chairman to visit South Dakota and to see first hand the circumstances that we live with and the critically important role that the Weather Service plays in terms of our economy as well as in terms of our transportation needs in that part of the country.

So, again, I thank you for taking the time here. I know that you have a busy schedule but I did want to share those thoughts with you directly as well as submitting a fuller statement for the record to your committee.

[The prepared statement of Mr. Johnson follows:]

April 11, 1991

Statement of the Honorable Tim Johnson
before the Subcommittee on Natural Resources, Agriculture Research
and Environment
The Honorable James H. Scheuer, Chairman

Thank you Mr. Chairman. I wish to thank the Committee and its members for giving me this opportunity to testify before you today on the subject of closing National Weather Service forecasting stations.

There is an obvious and urgent need to upgrade the weather station facilities across our nation to able us to forecast large and small-scale weather phenomena. Weather affects the Nation's agriculture, transportation, and public safety; thus accurate information about future atmospheric events is crucial to preparing for, and if necessary, mitigating any adverse affects of weather. I am very much in favor of seeing modernization of the technology used to predict the weather, but I am not in favor of any upgrade or modernization that would eventually leave areas of our Nation unprepared and therefor unprotected from the vagaries of nature.

There has been much concern in the state of South Dakota over the negative impact surrounding the closing of the National Weather Station in Huron. The Weather Service's plan to install Next Generation Radar system (NEXRAD), at other sites around the state, and close the Huron station, is flawed because it would leave an area in south central South Dakota totally uncovered. The Weather Station Office in Huron is the primary warning office for 18 counties and shares warning responsibility for 13 counties with the Weather Station Office in Aberdeen. The Weather Service plans to modernize the Sioux Falls and Aberdeen offices, and have their offices take responsibility for the area. Unfortunately this will leave a large portion of south central South Dakota completely uncovered. I have copies of maps available that clearly show this discrepancy. On the first map you can see the current coverage provided by Weather Service Offices in Sioux Falls, Huron, and Rapid City. (MAP 1). On the second map is the projected coverage that would be provided by the upgraded Weather Stations. (MAP 2). You can clearly see the large portion of the state which will be totally without coverage.

This is a scenario that is not unique to South Dakota: it will happen all around the country. The Administration has decided to cut the number of weather stations across the country from 250 down to 115. While there would appear to be a fiscal consideration being addressed by this cut back, the negative implications of leaving huge sections of the states unprotected are being ultimately ignored. We have seen time and again how timely and accurate weather forecasting has saved lives with advance notice of tornados, floods, electrical storms, and other occurrences of violent weather. In the Midwest and Plains States where sudden weather changes are the norm rather than the exception, leaving people without the ability to prepare for these calamities would, at best, be woefully negligent and irresponsible.

I will soon be introducing legislation that would prevent the closing of any weather station that would leave people in an area without weather forecasting service. The bill would force the Secretary of Commerce to appraise the effect of closing any weather station before such action is taken, and the Secretary would have to certify his action to both the Committee on Science Space and Technology in the House and Science, Space, and Technology on the Senate side. Currently the law stipulates the Secretary must follow the "strategic plan" before closing or automating any National Weather Service or Weather Service Forecast Office: a strategic plan the Secretary himself has drawn up. The 1988 law that mandated the strategic plan required the Secretary of Commerce to set forth in the plan "basic service improvement objectives." I am fearful that this is a possible loophole that is being exploited to carry out the closing of Weather Service Offices and Weather Service Forecast Offices to satisfy the Administration's "budget cutting approach" over a sensible "safety-minded approach". Again, I reiterate that I am very much aware of the fiscal crisis our country faces, and the need to cut wasteful spending practices, but I do not believe it is wise to cut back when there may be lives and even regional economies at stake.

My bill would also prevent the Secretary from closing, relocating or automating any National Weather Service Office or National Weather Service Forecast office located at an airport unless a full air safety appraisal is conducted. While everyone relies on accurate weather forecasts to plan ahead for many aspects of their lives, reliable weather information is of paramount importance to aviation. On the ground, a person may find time to seek shelter in a sudden storm, or at least get themselves to safety in the event of a tornado, but the pilot doesn't have the luxury to just put down and weather the storm. Quite simply, getting caught out in a storm for anyone in a plane could be fatal. The smaller the aircraft, the more likely a disastrous accident. As small aircraft play a vital role in the everyday lives of South Dakotans and Americans everywhere, and we must ensure the safety and well being of the pilots and passengers that use them.

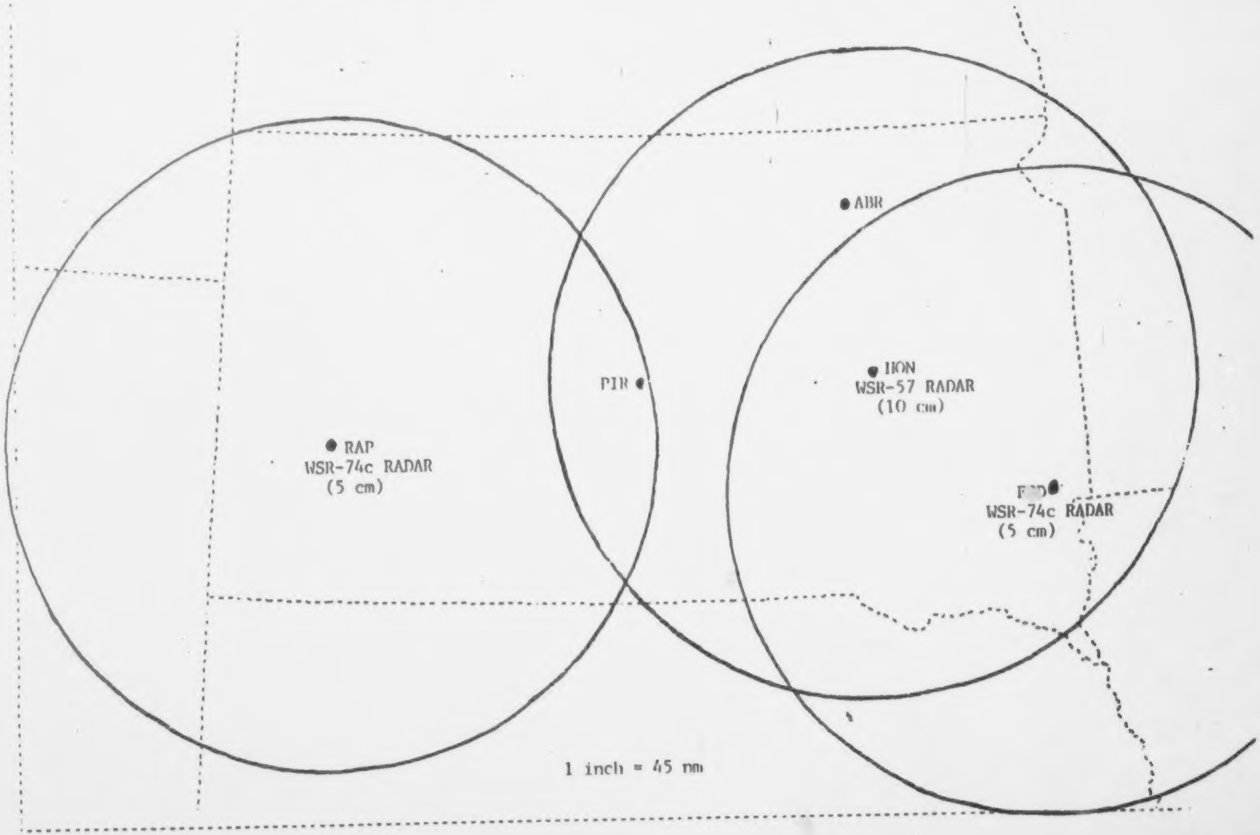
In closing I would like to respectfully make two recommendations to the Committee which I think would help keep modernization on track, and at the same time maintain the current safety levels provided by the current Weather Service Offices. The first recommendation is that there be effected a moratorium on any plans of the

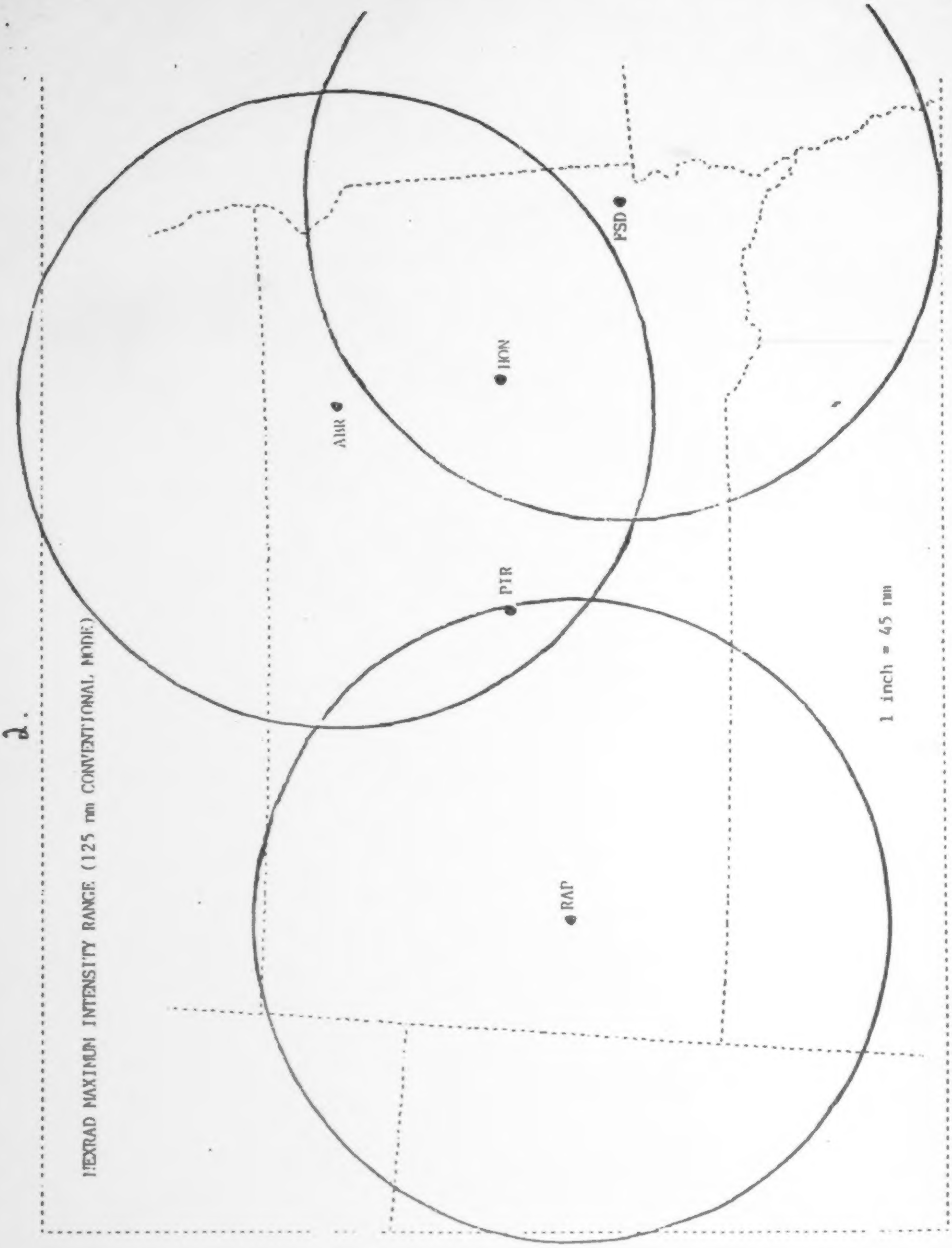
National Weather Service to close any Weather Service Office or Forecast Office until the safety requirements of my bill, if passed, are satisfied. Secondly I would invite the Chairman of this Subcommittee to come to South Dakota for a field hearing on this issue, so that he and the Subcommittee can be more fully acquainted with the problems people will face if they lose their weather forecast abilities.

Mr. Chairman, distinguished Members of the Subcommittee, you know people love nothing better than to talk about the weather, so I am especially appreciative of the time you have provided for me today. Thank you very much.

l.

CURRENT CONVENTIONAL RADAR MAXIMUM INTENSITY RANGE (125 nm)


ABR
HON
WSR-57 RADAR
(10 cm)
PIR
RAP
WSR-74c RADAR
(5 cm)
F[illegible]D
WSR-74c RADAR
(5 cm)
1 inch = 45 nm


a.
NEXRAD MAXIMUM INTENSITY RANGE (125 nm CONVENTIONAL MODE)
ABR
HON
FSD
PIR
RAP
1 inch = 45 nm

Mr. **Scheuer**. Thank you very much, Congressman. I invite you to come up here, too. And I would invite both of you to address your questions very directly and simply to Doctor Knauss. We're running a little bit late, so if we could assume that you've extended your remarks here on the substance and we can more or less limit your intervention from here on in to specific questions to Doctor Knauss and his staff, that would be really fine.

Mr. **Ritter**. Mr. Chairman.

Mr. **Scheuer**. Yes, I'm going to recognize you.

[Discussion between Mr. Scheuer and Mr. Ritter off microphone.]

All right, Doctor Knauss, we're very happy to have you here. I might say we've had excellent relations with you. When we've had tough questions for you, you've given us straightforward, honest answers, and we look forward to our continuing constructive working relationship.

Now before I recognize you, I would like to recognize the ranking minority member of this subcommittee, a very productive and constructive member, Congressman Ritter of Pennsylvania.

Mr. **Ritter**. Thanks a lot, Mr. Chairman. And, I commend you for your continued dedication to the oversight of the activities of the National Oceanic and Atmospheric Administration.

NOAA's mission as the primary Federal atmospheric and oceanic research agency has perhaps been never as important as it is now. Its research contributes to a better understanding of our global environment which, in turn, may help scientists solve the mysteries of global climate change.

Data from NOAA satellites played a key role in the Persian Gulf climate, their conflict. Forecast and storm warnings issued by the National Weather Service saved lives and helped millions of Americans go about their daily business.

The proposed budget for NOAA programs within this Subcommittee's jurisdiction reflects a healthy increase over last year's appropriations. NOAA's research in climate and global change will be enhanced. This research program will address the greatest uncertainties associated with climate change—the role of oceans and clouds. The budget also includes increases for the weather satellite programs in which this Subcommittee has a strong interest.

The budget also provides funds to continue the important modernization program at the National Weather Service. The Weather Service must have the modern technology that would enable it to save more lives by providing more timely and accurate weather forecasts. Still, it remains to be seen whether the proposed consolidation of Weather Service Offices after modernization is the right step to provide accurate forecasts and climate records in all areas of the country. We've heard some of our colleagues, and I certainly have my own concern about the Weather Station in the Lehigh Valley of Pennsylvania at the Allentown Airport.

I welcome Doctor Knauss and the other distinguished witnesses here today from NOAA. I feel a certain kinship with Doctor Knauss. I know he was a distinguished scientist, department chairman of the oceanography department, at one of America's leading institutions of oceanography, the University of Rhode Island, where he had some 35 years as department chairman. This is not a question related to the hearing, but how does one survive 35 years as a department chairman and still be intact? [Laughter.]

Dr. **Knauss**. It was only 27.

Mr. **Ritter**. Oh, that's why, only 27. Well, 27 is the same order of magnitude. And, I feel this kinship because Doctor Knauss' nephew, Chuck Knauss, was Minority Counsel on the Energy and Commerce Committee's deliberations over the Clean Air Act and probably knew and knows more about the Act "in toto" than any other living, breathing human being. He is a brilliant and delightful young gentleman, now with the law firm of Swidler and Berlin. The work isn't as interesting, but, as I understand it, it is a great deal more profitable.

This is my first Congress as the Ranking Republican of the Subcommittee, and I hope that we will get to know each other quite a bit better.

I yield back, Mr. Chairman.

Mr. **Scheuer**. Thank you very much, Congressman.

All right. Now I am going to recognize Congresswoman Morella for any remarks.

Mrs. **Morella**. Thank you very much. I don't have the editorial asides, in terms of the background. Mr. Chairman, I am pleased to be here at this very important hearing, and NOAA, of course, is my neighbor in Silver Spring, Maryland. At this hearing, I look forward to reviewing NOAA's fiscal year 1992 budget request and hearing about the progress of the key programs that are underway at NOAA; for example, the Weather Service modernization plan, the Global Climate Change research programs, as well as Landsat and the pros and cons of those GOES and POES satellite programs.

I am delighted to read that there is a significant increase, 24 percent, in funding for the NOAA programs under the Committee's jurisdiction. These increases are in three programs: the Polar Orbiting Weather Satellite program, which is POES, the Geostationary Weather Satellite program, GOES, all these acronyms that we have in society—and the Global Climate research program. This Global Climate research program is of great interest to me, and I am happy to see a proposed 65 percent increase over fiscal year 1991 funding.

Of course, I also have some concerns which I hope will be addressed today. There are problems with the contract for NEXRAD, the Next Generation Radar System. NEXRAD has shown success recently in Oklahoma in detecting tornadoes and in predicting their development. We need NEXRAD, and I hope there will be a resolution of the contract dispute with Unisys.

The Landsat program is also a matter of some concern. The Committee on Earth and Environmental Sciences states that Landsat data is critical to the U.S. Global Change research program. However, I do not see funding in the NOAA budget for the Landsat 7 program. I hope the Subcommittee can have a full review of NOAA's policy on Landsat.

GOES-NEXT has a very severe budget. I know there will be a further hearing in order to focus on the GAO audit of the GOES weather satellite program.

Mr. Chairman, I welcome our witnesses and certainly our colleagues who are before us, Congressman Johnson and Congressman

McCloskey, and those representing NOAA. And, I look forward to working with them to fund the programs which are essential to our way of life.

I yield back the balance of my time. Thank you.

Mr. **Scheuer**. Thank you very much, Congresswoman Morella.

All right, now I would like to ask our colleagues, Frank McCloskey of Indiana and Tim Johnson of South Dakota to address the problems of their special concerns in their districts, and I would urge them to do it as briefly as possible, too. They have some direct questions to ask of Doctor Knauss. But if we can keep the questions lean and mean and try and get to the answers, then we can go on with the regular business.

And I am delighted to have you here. Please.

Mr. **McCloskey**. Thank you, Mr. Chairman. How's this for lean and not even moderately mean, but with the top people from the Administration here in these very, very important areas, you're the experts in the fields, Doctor Knauss, you and Mr. Friday, and we have had very positive discussions, at least as far as tone, with Mr. Friday. You know what our weather area is like and you know this technology is in dispute, why do you want to do this to southwestern Indiana and the areas of two other States in the tri-State?

Dr. **Knauss**. Congressman, in the first place, we will probably never have as many radars as one would like to cover all the areas of the world, all the areas of the United States, excuse me. What we can guarantee is that when the new modernization system is completed that we'll have much better weather coverage than we have at present.

Your diagrams which show the 90 mile circle of coverage may turn out to be correct. But if they are correct, we'll be very disappointed. These new radars are now under construction and going through testing. It is our belief that the coverage of those radars will be on the order of 140 statute miles, not 90 miles. And if we are correct, as we believe we will be, then the coverage will be adequate for what your problems you are addressing, sir.

Mr. **McCloskey**. Well, might I say, Doctor Knauss, and I thank you for your courtesy, you and Doctor Friday, but I anticipated that response. But I do think it is very important, Mr. Chairman, that you do admit that the coverage of these radars is in some doubt. I don't want to belabor this, but the Evansville area study, Doctor, that I referred to, this was not done by journalists or politicians, it was done people with credentials similar to representatives at this table in weather technology and climatology and so forth. So you do agree there is some very serious concerns here.

Dr. **Knauss**. Well, I think the best thing to say is that these are radars which are now being built, they are now under construction, they are now being tested. The tests, and Doctor Friday has just seen some of the most recent tests that were done in Norman, Oklahoma and perhaps he can address that in somewhat more detail, but we are very enthusiastic about what we've seen with respect to the first of these production radars that is now becoming available.

There are some problems with them, but the problems are essentially with certain kinds of software having to do with data overload and things of this nature, not with the hardware. And we are convinced that these software problems can be resolved and will be resolved quickly, and that the radars themselves are excellent.

Mr. **McCloskey**. In deference to the Chairman's time concerns, and you understand my concern, and you've heard at this meeting what I've had to say today, but just extracting two or three key sentences from our Evansville report, and, again, this is I think an expert report, I think you have a copy.

> Combining these effects, Doppler coverage might be characterized as a function of range statute miles in the following way: less than 30 miles, excellent; 30–40 miles, very good to excellent; 40–70, good, very good; 70–100, fair to good; 100–150, poor to fair; and greater than 150, of small consequence.

So I would just say that we have incredible doubts as to the range of this technology right now and what the implications are for the Evansville area. We are not going to resolve this today, but I thank you for admitting that there is a lack of conclusive information as to the comprehensiveness of these systems, Doctor Knauss. So I thank you very much.

I thank you, Mr. Chairman.

Mr. **Scheuer**. Thank you, Congressman.

Congressman Johnson.

Mr. **Johnson**. Thank you, Mr. Chairman. And, again, very briefly because I know you have other business here, but the concern that my constituents in South Dakota have is that in fact the closure of the Huron office would in fact create a gap in the south-central portion of the State. I don't know if you have access to a copy of the maps that we handed out, hopefully you do there.

Dr. **Knauss**. Yes.

Mr. **Johnson**. And I would invite any comment you might have about that. I would have to say that your personnel in dealing with our office and attending meetings in Huron have been very cooperative and I commend your office for that. We are generally supportive of the continuing upgrading effort that is going on in the Weather Service, but we are concerned about that gap.

And, also, I would appreciate any comment you might have about whether you would deem a moratorium on the closure of airport-based weather stations appropriate until the Secretary certifies that a air safety appraisal has been conducted and that no reduction in current safety levels would be created by the closure of that airport weather office.

Dr. **Knauss**. Congressman Johnson, I would like Doctor Friday, who is head of our Weather Service, to address the first of your questions.

As to the second of your questions, I do want to reiterate a point that Secretary Mosbacher has made in the past that there will be no closing of weather stations until such time as we can certify that our new advanced weather operations are as good or better than what presently exists.

Mr. **Johnson**. If I can have you elaborate just a bit, Doctor Knauss. Now, when you say "good or better," does that mean overall or does that mean that net gains and losses in some areas?

Dr. **Knauss**. Area by area.

Mr. **Johnson**. Very good.

Dr. **Knauss**. Joe.

Dr. **Friday**. Let me reiterate that last point, Mr. Johnson. The Secretary's certification that there will be no reduction in services does apply on each area as we move forward. It does include an analysis of aviation support as well as support to the general public, all of the various safety factors there. So that is inherent in the certification process that is currently mandated by law and that we are currently planning on implementing as we go across.

With respect to both Mr. McCloskey's and your concerns, I was first of all very delighted that you felt that our interactions that we've had in the past had at least been civil and that we have been trying to work with you to alleviate your concerns. I agree. We have been working with your staff fairly closely to try to outline things as they develop for both of your concerns about the areas of closure. I know the gentleman that did your study and they are very credible scientists; they are excellent. And, as a matter of fact, we discussed this issue personally back and forth several times and I have invited Doctor Snow to visit our facility at Norman at his earliest opportunity and see the performance of the radar in action because I think he would change his analysis somewhat. But I am not asking him to do that right now. What I am asking to be done at the present time is to allow us to continue the testing and evaluation that we currently have underway. Under the most rapid deployment deemed possible, there would be no closures of either the Huron station or the Evansville station at least until the 1995, probably the 1996 time frame.

Mr. **McCloskey**. Doctor, while you're talking about that, could I ask how would you provide final proof that it would be safe to close the Evansville office? Has that been resolved yet?

Dr. **Friday**. We are going through the details of the actual documentation and certification process right now. Those plans are in the final stages of development. They will be reviewed by the National Academy of Sciences Modernization Oversight Committee this year, and we will have——

Mr. **McCloskey**. Will we be in on the early loop on that?

Dr. **Friday**. Absolutely. They will be public documents as soon as we finish the final coordination of those internally and when they go to the National Academy for review, they are at that time public documents. There is no problem at all with that.

Mr. **McCloskey**. I know you do realize just how severe a tornado area that is. I didn't exaggerate the situation at all.

Dr. **Friday**. The area throughout all of the Ohio-Indiana-Illinois area is very definitely tornado prone. I've lived in those areas before. I am fully familiar with those. And I also appreciate the type of severe weather we have on the plains areas in the Dakotas. The situation there, however, based on what we have seen already in the demonstration of the NEXRAD capabilities for the past three weeks, we have been able to track mesocyclones to detect tornadic activity out at the ranges of 100-plus miles and provide solid forecast. There has not been in the last three weeks since that radar has been operating there a storm that has gone unwarned using that radar, and that's out to the boundaries, out to the borders of Oklahoma. It is a spectacular technological performance. It still has some maintainability problems that we have to worry about before we deploy that. But the technology is proving itself very rapidly.

But I'm not saying we're here from Washington and we're here to help. I am saying give us a chance to go ahead and prove these things before we automatically assume that it can't be done. If it can't be done, then we will have to reexamine. But we will be going through detailed examinations of our ability to provide these support capabilities in aviation weather safety, the public weather safety aspects, the warnings and forecasting of the severe storms. All that will be done and will be done in a completely open fashion. We will have that data available for all of your review. As a matter of fact, if it continues to be as I expect it will be, as I have seen so far, we will be absolutely delighted to show you that and prove that the allegations in the New York Times are a long way from the truth. Okay?

Mr. Johnson. Very good here. I appreciate your working with us on this, Doctor Friday and Doctor Knauss, and my office will continue to be in close communication with you. We will be following, monitoring very closely the developments that you find as this project proceeds.

Mr. Scheuer. Congressman Ritter.

Mr. Ritter. Thank you, Mr. Chairman.

I would like to get the central features of the hearing going, and, because of that, I will reserve the right to contact you either at the end of the hearing or under separate cover. But I do have significant concerns about similar situations to our colleagues, Johnson and McCloskey. But in the desire to get on with the hearing, Mr. Chairman, I yield at this time.

Mr. Scheuer. Thank you very much, Congressman.

Okay. Let me say as to some remarks you made to Congressman McCloskey, you indicated that if the coverage of these stations wasn't—or if the coverage of these stations left the gaps that their maps indicated and wasn't substantially in excess of these—if the circumferences weren't substantially greater than these and eliminated the gaps, you would be disappointed. I don't want to be contentious, but you know that our committee is not going to be satisfied with an expression of just disappointment. We're going to expect that disappointment to produce action. And I don't think I have to beat that dead horse here this morning. We're totally committed to recognizing your bona fides and we're committed to the concept that we can work together cooperatively. But if the results aren't as positive as we think and don't reflect what were the excellent results of this recent testing in the last 30 to 60 days, we will expect action to be taken. And I would repeat the assurance you gave me that there will be no gaps permitted and that you will not close down weather stations that in effect create a gap.

Dr. Knauss. That's right, sir.

Mr. Scheuer. I accept that statement as made in good faith.

Okay. Let's get on with the hearing. We are going to cover the Aegina Stationary Operation Environment Satellite, we want to hear remarks about that; we want to hear about the POES, the Polar Orbiting Environment Satellite; we want to hear about NEXRAD that is of such tremendous importance; we want to hear about ASOS, the Automated Surface Observing System; AWIPS, the Advanced Weather Interactive Processing System, and any other remarks you wish to make.

I wish to state at this time that I have an emotional concern and commitment to NEXRAD stemming from my own personal experience. During World War II I was an Army Flight Instructor and I instructed all over the United States, but particularly in the southwest and the west. I was in Biloxi, Mississippi for a time, I was in San Antonio for a time, I was up in California at Air Bases out in the desert that advertised 365 flying days a year. When you have Air Bases located in or near deserts, and when you have Air Bases such as you have in Denver, Colorado, where I instructed, that are surrounded by mountains, you have a tendency to have very unusual and sometimes unpredictable and violent weather phenomena. Now we didn't know that then but we know that now.

And I remember time after time, my friends and colleagues, flyers would go out on a training mission of some kind and on a perfectly clear day with perfect visibility, all of a sudden—and this is particularly true of landings and take-offs, they would dive into the ground unaccountably. I saw tragedy after tragedy. And we scratched our heads and thought about it but we didn't come up with any answers. We thought maybe they had a terrifically acute case of indigestion, appendicitis, a heart attack. We were not able to account for experienced and competent pilots in perfect weather flying their aircraft into the ground. And now we know, or now we think we know, that what they came up a crop of was this complicated phenomenon known as wind shear, which is a violent and radical change in wind direction and velocity. This brought down a number of commercial airlines in the last decade, commercial airlines, without notice, without warning.

Now, through NEXRAD, we can identify those wind shear phenomena in time to get that information to the pilot that he is approaching a wind shear happening. And it is so important to get that to him within seconds because the time frame is very short. But when that engendered, we shoot it directly to the cockpit, we don't even give it to the control tower—or maybe we give it to the control tower, but we send it directly from the weather station to the cockpit of the plane involved. And that is a blessing. That is one of the most compassionate applications of high science and technology that I've ever heard of. And from my own experience, it fills me with the greatest of satisfaction that we're now in a position to avoid those utterly unnecessary cases of pilot and passenger fatality. So I am thrilled with the advent of NEXRAD.

Okay, Doctor Knauss, please take such time as you may need and then I'm sure we'll all have some questions for you.

STATEMENT OF DR. JOHN A. KNAUSS, ADMINISTRATOR, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE; ACCOMPANIED BY DR. ELBERT W. FRIDAY, DIRECTOR, NATIONAL WEATHER SERVICE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION; THOMAS N. PYKE, JR., ASSISTANT ADMINISTRATOR FOR SATELLITE AND INFORMATION SERVICES; GRAY CASTLE, DEPUTY UNDER SECRETARY FOR OCEANS AND ATMOSPHERES; DR. NED OSTENSO, ASSISTANT ADMINISTRATOR FOR OCEANIC AND ATMOSPHERIC RESEARCH; AND RODNEY WEIHER, NOAA COMPTROLLER

Dr. KNAUSS. Mr. Chairman, thank you very much. I have with me, as you know, Doctor Friday, who is head of our National Weather Service; Mr. Gray Castle, who testified before you some time ago, who is our Deputy Under Secretary at NOAA, and who is particularly concerned about the acquisition of our new equipment, the radars, satellites; Tom Pyke, who is the Assistant Administrator for Satellite and Information Services, the satellite programs with our data management; Ned Ostenso, who is also Assistant Administrator for the Oceanic and Atmospheric Research; and Rodney Weiher, who is our comptroller.

Mr. Secretary [sic], I have a statement, a formal statement which I would like to submit for the record.

Mr. SCHEUER. Without objection, so ordered.

Dr. KNAUSS. And given the time, I will be prepared to start answering questions immediately or I can say a few words in summary. It is your choice, sir.

Mr. SCHEUER. Let's do that.

Mr. RITTER. What I would ask the Secretary, if he would briefly describe what he sees as the priority of the——

[Mr. Ritter's microphone malfunctioning.]

Dr. KNAUSS. Well, the NOAA budget has gone up remarkably given the difficult budget years, the last couple years——

Mr. SCHEUER. And we want to give you full credit for your leadership. Those increases didn't come from the tooth fairy, they came from tough, competent, well-respected professional leadership, and we express our admiration and thanks to you.

Dr. KNAUSS. Well, thank you. I hope that—never mind, I won't say anything. [Laughter.]

I indicated, the budget is $1.6 million, including some $35 million transferred from the Aviation Trust Fund. That's about a 9 percent increase over last year. And I think it reflects the President's balance between the overriding needs of pressing environmental needs while recognizing we have a constrained budget environment.

Priorities. Climate and global change clearly has to be one of our highest priorities in our newest initiatives. As you indicated, it is a major increase of $30.8 million, a jump which will take us from $47 million to approximately $78 million. This is a program of which a number of agencies are involved—NASA, National Science Foundation, and NOAA. I think it is very important to point out that NOAA plays a very key role in this Nation's program of climate and global change and is also I believe one of the most important programs this Nation has, depending upon what happens to it as far as the anthropogenic impact of greenhouse gases, carbon dioxide, methane, DFC, so forth.

Present predictions suggest that there will be either anywhere from 1 degree or a 4 degree change in the global climate, I mean temperature. It has been pointed out that although we talk about temperature, temperature in some sense is a surrogate, if you will, for other kinds of climate change—precipitation changes, so forth. And most of my colleagues who have thought about this are concerned that probably changes in precipitation patterns, which go along with the temperature change, are going to have more devastating effects, more important effects than just the warming, if you will, of the air waves temperature.

Mr. SCHEUER. You know, Mr. Sununu thinks this is all a lot of bologna.

Dr. KNAUSS. Well, I don't really—I think that's an overstatement, sir. I think the point is that there is——

Mr. SCHEUER. I didn't say that I thought it's a lot of bologna; I just said that Mr. Sununu thinks a lot of bologna.

Dr. KNAUSS. Well, I'm not sure that that's quite a correct characterization of his opinion on this. Let me point out, the point is that there are experts in this field agree that that change may be anywhere, as I say, from 1 degree to 4 degrees. It's very important that we know which that is. If it turns out to be a 1 degree change, if you believe that, we can live with that. If it is a 4 degree change, we have got to make some very important economic decisions which represent trillions of dollars in cost. That is why, as I say, the Climate and Global Change Program I think is one of the most important programs that NOAA has and one of the most important programs that this Nation has to get on to our ability to reduce the uncertainty in what are now present ranges of opinions as to what might happen with the doubling of the greenhouse gases.

Mr. SCHEUER. Mr. Sununu has exhibited great skepticism and disbelief that there is enough and sufficient and credible science there to justify what he probably accurately predicts will be significant expenditures in our society to reduce the phenomenon that cause global warming. Now when you do—So the question is when is enough enough in terms of the body of evidence that would convince sophisticated people that there is a real and present danger out there? How soon do you think you're going to be able to achieve the body of evidence that would impress an unbeliever and disbeliever like Mr. Sununu?

Dr. KNAUSS. There are two ways you can——

Mr. RITTER. Would the gentleman just yield on that?

Mr. SCHEUER. Well I would like to hear the answer to my question and then you can ask a question.

Dr. KNAUSS. There are two ways that you can arrive at an answer to that. One of which is by looking at the climatic data—after all, we've been adding greenhouse gases since the start of the Industrial Revolution, and one can hopefully predict, or should say observe these changes over time. It probably will take another 10 to 15 years of observations before one can be able to be certain that one actually sees the change in climate that one would expect based upon some of the numerical forecasting.

The other way to do it is to essentially view the models, the computer models. And we can do that by making these models more complicated, more sophisticated, and hopefully reach closure with respect to some of the differences that one now has in these models. Maybe more and more they will come closer to predicting the same kind of thing.

My own personal view is that the models will be a long time before one will have sufficient confidence in them if you do not have the observational data to go with it. So that gives us a kind of Catch 22 problem, because by the time we know that there is significant global warming, the lag with respect to what's involved here, means that it will be more significant because it will take a long time essentially to—there is a lot of inertia in the system. So that's a major problem and it is a major dilemma, Mr. Chairman.

Mr. **Scheuer**. Let me ask you the next question and then I'll yield to my colleague. It will take us 10 to 15 years to find out what we think might happen will happen with disastrous consequences in the long-term which are exacerbated by the 10 or 15 year delay before we undertake significant remedial programs.

Now, as an insurance policy—as an insurance policy—against the possibility that we'll find that our worst case fears are actually real and that there will be a significant degree of global warming, more or less the way a considerable group of scientists are predicting, would it be worthwhile as an insurance policy to engage now in the development of programs to reduce the factors that produce global warming—and I am talking about the greenhouse effect, I'm talking about excessive consumption of fossil fuels, and all of the other programs, acid rain, that we know about that contribute to global warming. As an insurance policy, does it make sense to spend some money, engage in funding on a sensible, cost-effective basis that would at least reduce to some degree the worst case impacts of global warming if our science over the next decade or decade-and-a-half indicate that that's really what's happening?

Dr. **Knauss**. I think the use of—I think your analogy of an insurance policy is a very good one. I think there is no disagreement anywhere within this Administration or outside this Administration with respect to the question of an insurance policy. All the disagreement, as you well know, when it comes to buying insurance is how much are you willing to pay for it, and that is where the disagreement is.

Mr. **Scheuer**. All right.

Congressman Ritter?

Mr. **Ritter**. Yes. I think it is somewhat unfair to Doctor Sununu to kind of put him at the end of this argument, on one end of this argument, versus a body of scientific analysis, on the other.

Mr. **Scheuer**. I didn't put him there; he put him there.

Mr. **Ritter**. Well, I don't know, because where he is at, there is also a very significant body of scientific analysis, and I think we have to acknowledge that. We have to acknowledge that even with the report in today's paper of the National Academy report, there is a tremendous and important split within the scientific community as to how real, how big global warming is. And, changes taken now, as opposed to 10 years from now, could actually have a salutary effect on the overall global system. If there is indeed global warming, and I'm not saying that there is or there isn't, 10 years is not a lifetime, considering how long global warming may have been going on, if it indeed has been going on. So, I guess my point is——

Mr. SCHEUER. Congressman, we are running very late. And this isn't the time, and I hope we will have the time to devote many hours to the consideration of this problem and——

Mr. RITTER. I guess, in defense of John Sununu and Administration policy, it may be wise to get better data and not just depend on computer models. And, I guess my question then is what are the limitations in the computer models we see today that need to be ameliorated and how does the NOAA program to ameliorate those limitations?

Mr. SCHEUER. Since you chastised me for mentioning Mr. Sununu, let me say that really this isn't the time to get into that. As I read that story on the front page of the papers today, it ratified and gave the imprimatur of approval to the very real concerns of scientists that global warming is out there in a massive way. I didn't read that as an indication that there is wide divergences of opinion in the scientific community about global warming; quite to the contrary. I read it as representing a real consensus in the scientific community that global warming is a clear and present danger.

Mr. RITTER. There is not a real consensus in the scientific community, even with the excellent report that's been done.

Mr. SCHEUER. All right. Okay. Let's proceed with Doctor Knauss.

Dr. KNAUSS. I'm almost hesitant to even enter this one. But I think the point I tried to make earlier is that the range of opinion is anywhere between 1 and 4 degrees. It is not that nobody believes that there will be no global warming, it is just a question of how much and how soon.

Weather modernization is clearly another high priority in our budget. We have already talked a bit about that from the questions from the Congressmen McCloskey and Johnson, who were here previously. We think we have a significant budget increase and I want to emphasize the point that having started down the road of acquiring this new equipment and training our workforce in using such equipment, it is important that we maintain our schedule insofar as possible in order to have all the pieces in place in the most timely and economically efficient manner

And you've heard recently from our Under Secretary, Mr. Gray Castle, with respect to the programming we're doing and the setting up of the systems program office reporting directly to him. And I am pleased to see that I think that although we have considerable problems still with scheduling of the NEXRAD and LEGRO satellite and so forth, but I believe that we're doing the best we can and the schedule, insofar as possible, is under control, given all the problems we have with the contractor and otherwise.

Satellite programs, as somebody indicated, is a major increase in our budget. And satellite programs are a major part of our programs. The fiscal year budget requests an increase of $101 million. I want to point out that that major increase in the budget has nothing to do, or little to do, with the problems that we are having with the GOES satellite. It has most to do with the fact that we are without polar orbiting satellite program, and our budget goes up and down as we have to buy satellites and develop satellites on a year-to-year basis. And that's one of the difficulties that we have with our budget is that these huge capital investments, like satellites, torque our budget from year to year which have sometimes little to do with increases in program.

Although it is not in my prepared statement, Mr. Chairman, I would like to point out that with respect to the Polar Orbiting satellites, we have as you know two of them go around and round the earth, we are talking now to the European group with respect they taking over the responsibility for one of these satellites so that they will be operating one and we'll be operating the other. The world will still have the same kind of coverage but in the long-run then the United States will only be responsible for keeping one of those up in the air and not both, not two.

Mr. SCHEUER. At that point can I ask will whoever the foreign operator is of one of those satellites, will they be willing to provide approximately 135 countries around the world, mostly developing countries, with the satellite data that has been so invaluable to them, that tells them when to plant, when to fertilize, when to irrigate, when to plow, when to harvest, without which they couldn't function.

Dr. KNAUSS. Congressman Scheuer, I think what you're referring to are the Landsats.

Mr. SCHEUER. Yes, yes.

Dr. KNAUSS. See, these are the Polar Orbiting Geological Satellites.

Mr. SCHEUER. I'm sorry. I thought you were talking about——

Dr. KNAUSS. But the answer is yes. That data will be available to all who need it for all of their weather observations.

Mr. SCHEUER. Right. I'm sure you know that our next generation of GOES satellite the geosynchronous satellite that is up there is in some difficulty. It is designed to provide detailed geological observations for tracking of hurricanes and severe storms in the Western Hemisphere. That's the GOES-7 that is up there at present. We have only one because our last satellite in that series blew up on launch. So rather than having the two satellites up there covering the East and the West parts of our country, we have had for the last few years only one satellite. It is running out of lifetime; it is going to die—well, see, it'll run out of fuel in mid-1993.

As you perhaps know, as a matter of fact I am sure you do know, the next series of these satellites we've had some difficulty with. They were scheduled to go up in 1989, the first one. It is now scheduled, the second one, is planning—the first one is planned to go up now in October 1992. There has been a significant cost overrun. We had hoped to bring this in in the beginning at around $500 million for the total cost of the five satellites. It is now going to cost us something probably over a billion dollars it appears.

Mr. SCHEUER. I might say that's about 300 percent over their budget.

Dr. KNAUSS. Well, $500 million versus a billion; it is double the budget.

Mr. SCHEUER. Double.

Dr. KNAUSS. That's still a lot, but I mean it is not——

Mr. **Scheuer**. It is still a lot, but on Landsat and the contract with Unisys, they have gone maybe $40 or $50 million over on the $600 or $700 million budget, which may be less than 10 percent. And here we are talking about buying into the time delay and the financial cost of switching horses in mid-stream. And it seems to me that if you could swallow a doubling of costs without a grimace——

Dr. **Knauss**. I can assure you it is not without a grimace.

Mr. **Scheuer**. Yes, well, if you can swallow that, a doubling of costs, I don't know why less than a 10 percent increase in cost should cause you to want to change horses in mid-stream and buy into the delay, which could be many, many years, far more than what you hopefully anticipate, and end up costing our country hundreds of millions or billions of dollars and untold loss of human life. We have talked about that privately and I don't want to belabor the matter, but since you are indicating that you've had a doubling of costs, and maybe of concern to you but perhaps not great concern, I don't know why this other cost of an order of magnitude far less should cause an apocalyptic response.

Dr. **Knauss**. Mr. Chairman, I think your point is well made.

Mr. **Scheuer**. Okay. Please proceed with your testimony.

Dr. **Knauss**. We are concerned about the GOES satellite. Even the one that's up there faces not exactly benign environment, not completely benign. There is a possibility that we will be in a No-GOES situation with no geosynchronous satellite up there and we have, therefore, spent some time and effort considering what we would do in case we should lose the present one that's up there. Were we are not able to send up the next one in time, the plan consists of using both the NOAA and DOD Polar-orbiting satellite to generate snapshot images, make it look like a GOES satellite, if you will, where we get a shot maybe every three hours versus every half hour or so with respect to the GOES. We are also going to increase the availability of all polar orbiting data throughout the Weather Service Offices, and we're going to rely on the European geostationary satellite that's in the Atlantic.

The Europeans have just established a second geostationary satellite. We believe it can it be moved to 50 degrees west. If it does, once there, it will give us the coverage of the total Caribbean and North Atlantic and the first two tiers of States, and will provide us the kind of coverage that we have learned to expect with respect to the Atlantic hurricanes but, of course, will do nothing with respect to the problems in the Pacific.

Landsat, which I know is dear to your heart. I should point out that the funding for the necessary procurement of Landsat 6 was provided in the fiscal year 1991 budget. The system is under development. It is currently scheduled for launch in mid-1992. In the past, funds have been obtained from Landsat data user agencies to continue the operation of Landsat.

The Administration this year is requesting an increase of $7.7 million, for a total of $17.2 million, for the continued operation of Landsats 4 and 5. They are still up there. They're a bit tired; we're not sure how long they are going to last, but this Administration has agreed that it will continue to fund Landsat 4 and 5 until they are no longer with us. Landsat 6, as you know, now becomes the responsibility of the commercial operation, and, at this point, we are still living under the plan that we have had in the past; namely that Landsat 7, if there is a Landsat 7, will be a completely commercial operation.

Mr. **Scheuer**. Well, now let's just get on the record. I don't believe that we're ready to float a Landsat 7 up there on the intellectual assumption that it's going to be fully self-supporting on a commercial basis. Do you believe that it will?

Dr. **Knauss**. Mr. Chairman, based upon studies we have made a year or so ago, we also reached that same conclusion, that it seems unlikely that there is enough commercial activity to fully support a Landsat-type operation.

Mr. **Scheuer**. So the question is do we want a Landsat at all supported by Government. That's the question we have to face up to. Let me ask you, if Congress came up with a plan for Landsat 7 with cost shared by NOAA, your agency, the Department of Defense, and other agencies, perhaps being managed by NOAA or a joint program office, would you support this approach to getting a Landsat 7 up there in any event?

Dr. **Knauss**. Mr. Chairman, I am not in a position to make a statement on that because the Landsat issue is before the President's Space Council, chaired by Vice President Quayle; and I believe that that is a question that should be addressed to that group and answered by that group. I am not in a position to give the Administration's position. It is an interesting idea I can say, but I am not in a position to answer.

Mr. **Scheuer**. Fair enough. I accept that. I also would like to add to record that Landsat 4 and 5, as you indicate, are still with us way beyond their expected term of life. And the fact that they're still functioning there, pretty well up to par, is a tremendous victory for American science and technology. Wouldn't you say that's true?

Dr. **Knauss**. Yes, sir. They certainly have lasted far longer than even their most optimistic proponents had suggested when they first were being built and launched.

Mr. **Scheuer**. I think that's true. And it seems to me we ought to be expressing great satisfaction and preening ourselves as a country that our science and technology, going back quite a number of years, was so much further advanced than we thought it was. Those two Landsats had a vitality and a survivability that far exceeded our expectations. And that our investment, our capital investment in them, is being spread out and amortized over a far greater number of years, and that it has been productive, and cost-effective beyond almost our wildest imaginings a decade ago. Is that a fair statement?

Dr. **Knauss**. I would think so, yes, sir.

Mr. **Scheuer**. Okay. So I can only express my sorrow that over the past few years the Administration was so reluctant to come up with the pittance that it needed to keep those Landsats alive—a pittance, a few million dollars when we've spent a vast amount of money on the capital development of those Landsats, vast amount of money enlarging them, and then had a life expectancy, in effect, far longer so that they were far more productive and cost-effective than we ever could have hoped that they would be. Yet this Administration caused this committee year and year to beg, plead, to get down on our knees and genuflect, please, give us the $5 or $10 million a year that it takes to keep those two Landsats operational. I ask you for a response.

Mrs. MORELLA. Mr. Chairman.

Mr. SCHEUER. Yes, Ms. Morella.

Mrs. MORELLA. Will the Chair yield?

Mr. SCHEUER. Happy to yield.

Mrs. MORELLA. Thank you. I wanted to just jump in with regard to the Landsat concept, because we have heard rumored that Landsat 7 interest is being voiced, mumbled, by the Defense Department. Now, I wondered if you would comment on whether the Defense Department has an interest in doing something with this, themselves, and what the ramification would be of turning over that kind of technology to them.

Dr. KNAUSS. Well, obviously the Department of Defense already has that kind of technology. I think the question is if there is—Let me back up a little bit. Mr. Chairman, I think one must also recognize that Landsat system has been operating under the Landsat act which was passed by Congress as well as approved by the Administration, and that the thought that one could commercialize this program was clearly agreed to by both Congress and the Administration. So the failure of that, I think we both share.

Mr. SCHEUER. Oh, there's no question about that, no question about that. But now it seems to me we ought to face the fact out there that Landsat provides a prodigiously valuable service, a very, very valuable service. Just the service that we're giving to the developing world is really impossible to put a price tag on in terms of the good will and the respect and the admiration that we're getting for our help in reaching out to those countries and giving them information that is invaluable to them. We know that it is a service that's valuable. We know that 4 and 5 Landsats were spectacularly successful in terms of longevity. And it seems to me clear that we do need Landsat 7 and the question is how do we finance it. And you gave me a very constructive suggestion when you suggested that this committee write the Space Council. I think that's precisely what we're going to do.

Dr. KNAUSS. I think it is quite clear that there is—I believe it's quite clear that there is not enough interest in the commercial market to support a Landsat 7. There is clearly interest in a number of government agencies in Landsat. Those agencies include the Department of Defense, Department of Agriculture, Department of Interior, and NOAA, and I would suspect they are probably in about that order of interest.

Mrs. MORELLA. I see you're at the bottom of the list.

Dr. KNAUSS. Yes, we have an interest but it is on the list of satellites that we are responsible for, particularly weather satellites, our use of the Landsat system is certainly lower. On the other hand, we are the civilian satellite agency, we are responsible, have been responsible for the flying of all civilian satellites. The question then comes as to if there is a Federal interest in these, how is it going to be handled. And you're correct that the Department of Defense is thinking about this because they probably had the most need for this information of any of the other Federal agencies.

Mr. **Scheuer**. Has the Department of Defense given you any assurance that Landsat information that they develop will be available for other interested government agencies and to developing countries around the world for such information as——

Dr. **Knauss**. Congressman, I think at this point discussions of a very general level. There's really been no discussion in that kind of detail as you've suggested. But you are right in raising the issue because there clearly has to be some concern that if the Department of Defense does take over Landsat, then the question comes up as to whether or not the United States—what responsibility the United States has, say, for the you say 135 countries that have Landsat receivers in them.

Mr. **Scheuer**. Yes.

Dr. **Knauss**. One hundred, thirty-five areas, I'm not sure one hundred and thirty-five countries. And it is an issue. On the other hand, there will be a Landsat 6 up there which, if it goes as long as Landsat 4 and 5, there will be lots of years of data for these countries and, as I'm sure you know, if there is not a U.S. Landsat, there will be a French Spot or maybe even a USSR, I'm not sure what they call it, satellite which provides comparable kinds of information for other countries. The question of whether or not the U.S. wants to get out of this game is a policy decision which I'm not in a position to make.

Mr. **Scheuer**. Indeed, it is a tremendously important decision facing us. Also, I have to comment that I admire your expressed or implied feeling that this data ought to be shared internationally. You seem comfortable in feeling that the Europeans are going to take over one of these Landsats and I feel comfortable too. That data ought to be shared, especially in view of the diminution and practical disappearance of the harsh confrontation of the Cold War years with Russia. This is just one of the very small dividends flowing from the disappearance of that awful confrontation that plagued us for almost half a century.

I would hate to feel that we were going to be abdicating our civilian role in Landsat to a Department of Defense that wasn't willing to make it perfectly clear that they were going to respect the need of other United States Government agencies to data that was appropriate to them, that they were going to respect the need of the private sector for data that was appropriate to them, that they were going to respect the need, the urgent need, of these developing countries that have already benefited enormously for a number of years from data that we've given to them that was appropriate to them.

Now, if the Defense Department takes over Landsat, undoubtedly they will be acquiring information of a strategic or military value that they might not want to share, and perfectly properly so. I am not saying at all that they've got to distribute everything that they know and all the information they receive. That would be silly. But I would be concerned if they were not perfectly clear about their willingness to provide information that you would deem appropriate, as I said before, to the commercial sector, to the various government agencies that you've identified, and also to the developing world users. And it seems to me that ought to be something that we ought to discuss with the Defense Department. If they wanted to take over Landsat 7 and we had no problem on access to appropriate data that had no security implications for us, I would be perfectly happy to do that. I think the greater the sharing of these enormously expensive capital items that we're hurtling out into space, the greater. And it seems to me that if foreign countries would be willing to share that, that our Defense Department would find it appropriate to share that to the extent that security issues were not involved.

May I at this point ask you, Doctor Knauss, you have a $78 million budget for Climate Change Research. And we know your commitment to doing a fine job on climate change. How do you reconcile the fine leadership you're giving to global climate change research with NOAA's apparent tepid interest or lack of interest in Landsat remote sensing data which has been found to be so absolutely indispensable to an effective global climate change research program and has been so attested to? As we discussed yesterday, in a report put out by the Committee on Earth and Environmental Science, the Landsat data was deemed absolutely indispensable to an effective program in global climate change research.

Dr. **KNAUSS**. Mr. Chairman, you are correct that that data is important for the climate and global change issue, not just necessarily for NOAA but for other agencies who are also involved in that program. And it is an issue which, again, will have to be addressed by the Administration as a whole. At present we have a Landsat 6 that is going to be up there. The data will be available through Landsat 6. The question before the House is Landsat 7, and that is a decision that has to be made and it has to be made fairly soon.

Mr. **SCHEUER**. It seems to me that question is before the Administration, and here——

Dr. **KNAUSS**. I'm sorry. I meant before not the House but before all of us, the Administration and the——

Mr. **SCHEUER**. And here is the guy sitting in front of me who has shown such towering leadership and who is the driving force behind global climate change research but who is showing such indecisive and tepid support for the very critical, indispensable element in that global climate change research, namely, Landsat data. How do I see this great big tough fighter for all that's good and noble, and then on the other hand this sort of wimpish Caspar Milquetoast. [Laughter.]

Dr. **KNAUSS**. Mr. Chairman, there are a fair number of agencies that are involved in the climate and global change program. I suspect if one looked carefully at the budgets for those various agencies and what role they have in climate and global change, you might find that a few others other than NOAA might have even more—might be expecting to lead the charge on that issue, sir.

Mr. **SCHEUER**. Well, we need a leader to get all those agencies together in leading the charge. Somebody has got to be the driver and I don't think anybody is more respected, has more credibility, or more sophisticated science knowledge than you have. And I guess we're looking to you for leadership. Almost two years ago, in June 1989, the National Space Council was directed by the White House to determine the best means to assure the continuity of Landsat data. Maybe you could tell us about what the status of that report is, what the results of the deliberations have to be, what NOAA has done or is doing now to get this matter resolved. You should be and have been a main player, a key player.

Dr. **Knauss**. Well, not say a key player in Landsat, sir. To the best of my knowledge, the question you raised is still before the National Space Council and has not yet been resolved.

Mr. **Scheuer**. All right. I think we've gone as far as we can go on that one. We hope that in the future you'll continue your fine leadership and keep pushing them to resolve it. And if you can get Secretary of Defense Dick Cheney to stand by you shoulder-to-shoulder, cheek-to-jowl, and push with you, great. And the same thing with the new Secretary of Agriculture, a former colleague of ours, a truly fine public servant and an enormously talented man. Have you had any talks with the new Secretary of Agriculture about this matter?

Dr. **Knauss**. No, sir, I have not. There have been informal talks at the staff level I believe at DOD but that's as far as it's gone.

Mr. **Scheuer**. Yes. And the Interior Secretary, he's a truly fine person. It seems to me that informal talks ought to be ongoing to create the kind of consensus within all these agencies that we urgently need it; we need this thing up there. All right.

Can I talk to you for a moment about the National Weather Service?

Dr. **Knauss**. Of course.

Mr. **Scheuer**. We have a shortfall of approximately $20 million in this fiscal year; is that about right for operational funds?

Dr. **Knauss**. I'm not sure at this point whether it is correct or not, but there is a shortfall. I am not prepared to accept the number.

Mr. **Scheuer**. All right. Do any of your staff have a clue about the——

Dr. **Knauss**. No, I mean I know that that number has been floated. We have not yet resolved whether or not it is as been suggested.

Mr. **Scheuer**. Doctor Friday, do you have any feeling about the order of magnitude of the expected shortfall for this year?

Dr. **Friday**. Doctor Knauss is correct; there is a shortfall and we are currently looking at the exact nature of that and solutions toward that.

Mr. **Scheuer**. Can you give us a ball park figure of, A, within 5 or 10 percent what that shortfall is going to be, and B, when you're going to know it, and C, when you're going to give us some suggestions as to what we ought to do about it.

Dr. **Friday**. Rodney, can I turn to you on that one, our comptroller.

Mr. **Weiher**. Mr. Chairman, as you can see, you've raised an issue which is right before us right now which we're trying to resolve. I'm not sure it will be resolved around this table before you, but it is one that has all of our attentions.

Mr. **Scheuer**. Fine. We don't have to say the last word on it today. There are days and weeks and months ahead, and we can reason together and confer together. Do you have a view on this?

Mr. **Weiher**. Well, I think we're looking at a number anywhere from about 2.5 upwards. Some of the ones that we can identify where the shortfalls have been primarily concern some of the rent increases that we've had with the Weather Service having to move into their new facilities, which we like, but we haven't been able to budget for those and they've had to absorb those, and there's been some other costs. But we're looking at that issue very hard.

Mr. **Scheuer**. Do you plan to ask for a supplemental?

Mr. **Weiher**. At this time, I couldn't say.

Mr. **Scheuer**. Well, if you're going to have a significant shortfall and you don't plan to ask for a supplemental, where would you think the money is going to come from?

Mr. **Weiher**. Well, some of the options, of course, would be to look at reprogrammings and things like that; internally.

Mr. **Scheuer**. And how long does that take?

Mr. **Weiher**. Oh, it takes weeks, sometimes months.

Mr. **Scheuer**. I would think that reprogramming is sort of an uncertain prospect to rely upon, a slender reed. Do you plan to reduce hours of service, or do you plan to close Weather Forecasting Offices?

Dr. **Friday**. No, sir.

Mr. **Scheuer**. That's out. I can tell these two Congressmen that were exhibiting concern.

Dr. **Friday**. Yes, sir.

Mr. **Scheuer**. When do you think you're going to reconcile this issue of whether there's a shortfall, how much it is, whether you're going to ask for a supplemental?

Dr. **Friday**. My comptroller tells me that we think we'll have this resolved within two or three weeks, sir.

Mr. **Scheuer**. Very good. Very good. Maybe you could write us a letter or give us a phone call and telling us how its going.

Dr. **Friday**. Absolutely.

Mr. **Scheuer**. All right. Let's talk about GOES. I understand that the GOES satellite program is included in the new Systems Procurement Office, yet there's no indication that the new Polar-orbiting satellite procurement is to be managed by that office. Why is that?

Mr. **Castle**. Mr. Chairman, it is a reasonable question that you ask. I think our judgement is that at this junction, with NEXRAD and GOES, the new program office will have its hands full. It very well may be that with the passage of time we will include not only the polar satellites but modernization and perhaps some other things that involve high technology.

Mr. **Scheuer**. Well, I think that's a reasonable position. I think they're going to have their hands full. They ought to be full right now.

Let me just ask about the Weather Service modernization and the problem with Unisys and Raytheon. Is anybody doing a sophisticated cost-benefit program that would give us more feeling of what changing horses and jettisoning Unisys and clamoring on the back of Raytheon is going to mean to us in terms of delay of the actual date of enjoyment by our society of those programs, and that may be a number of years. Have you tried to do a sophisticated analysis, month-by-month of what's going to happen, and how long that total delay is, and the cost of the delay in human lives and in property destroyed, have you thought about what's going to happen to the increased cost of producing the hardware and the software itself, partly as a result of delay—because delay always cost time, inflation creeps in—and have you computed that against the likely overrun that Unisys is going to produce? We see it as being something less than 10 percent.

Mr. **Castle**. You'll recall from our discussion several weeks ago that this is a joint program of the Department of Commerce, FAA, and the Air Force. We have had a team comprised of representatives from those three organizations that has been working on an exhaustive options paper which we now have in draft form and are circulating to our partners, the Air Force and the FAA. We will have a meeting on the 17th where——

Mr. **Scheuer**. Of April?

Mr. **Castle**. Yes, sir. Where foremost among the subjects of discussion will be this options paper. As I indicated when I appeared before you several weeks ago, it was our earnest hope that we would be able to resolve the cost issues with Unisys because it is clearly in everyone's benefit to go forward on that basis. However, there is a point—and I don't feel at liberty to go into the various options today—where that particular is not worth the candle. But I can assure you today, as I did then, that our predisposition is to want to go forward with Unisys, and we believe that they are approaching this with a spirit of willingness to compromise and good will. So I am hopeful that we will in our definitive discussions, which will take place after this meeting on the 17th and after the Secretary has approved the strategy that we intend to employ, I am hopeful we will be able to conclude this successfully.

Mr. **Scheuer**. Very good. Very good. We ought to be in touch after the 17th.

Mr. **Castle**. I promise you that we will keep you in the middle.

Mr. **Scheuer**. Excellent. Let me ask you about the tests of NEXRAD, the Doppler facility in Oklahoma, that were made at the Operational Support Facility over the last couple of weeks. Can you tell us something about it. We've drifted over it lightly; can you tell us something specific about the results of those tests?

Dr. **Knauss**. I believe Doctor Friday, who is the expert on the subject, can do a much better job than I can, sir.

Mr. **Scheuer**. Fine.

Dr. **Friday**. The tests were run with the production NEXRAD unit that is intended to cover the central Oklahoma area. It is actually positioned just south of the major portion of Oklahoma City. The tests were run from the 20th of March until—actually, they're still going on at the present time. But the purpose was to identify the ability of the radar to produce warnings and forecast in our operational office. It did not go into the detailed analysis of maintainability, reliability.

Mr. **Scheuer**. I understand there was a severe weather phenomenon there on March 21st, the day after you tell me they became operational. How did this system perform in identifying and predicting those weather phenomena?

Dr. **Friday**. The system performed very, very well. It identified all of the severe storms and tornadoes during that entire storm system, as well as storms that also passed through the area on the 26th of March and as late as last night or night before last, I forget exactly when. But there have been four major storm systems move through the State with the radar operating. The radar has performed very well during that time period.

There are difficulties with the system. There are still no maintenance manuals available and various other things that are necessary for full deployment in the field. And those are some of the issues that we are negotiating with Unisys at the present time. There are some concerns with long-term maintainability, and those are also being discussed and negotiated with Unisys.

The technical ability of the radar to perform meteorological detection, severe storm detection, tornado detection, precipitation detection, is well within any of our expectations.

Mr. **Scheuer**. That's very encouraging, wouldn't you think?

Dr. **Friday**. It's very encouraging, sir. And we hope that we can continue to solve the rest of the problems associated with the system.

Mr. **Scheuer**. It seems to me that the failure, or the lateness, let us say, of Unisys in producing training manuals is something that, you know, they should be brought up short on. But it seems to me that wouldn't be a cause of anything like a cause of going from Unisys to Raytheon. That's a detail; they should do the job they are supposed to do and that's a subset of the job. But basically we have reason to be pleased and encouraged.

Dr. **Friday**. That's very great.

Mr. **Scheuer**. It's great. Okay. When the test results were sent to Washington from the Operational Support Facility in Oklahoma, were there any changes made in this operational effectiveness report as a result of those tests?

Dr. **Friday**. Sir, I have not seen the final operational effectiveness report. I can't answer that question. I have seen all of the reports of the individual evaluators and I certainly understand—I have read and evaluated those. The assessment that I give you is my analysis of the work that was done from the individuals, consisting not only of National Weather Service employees, but also of Air Force and FAA people at the site.

Mr. **Scheuer**. Very good. Let me ask you about the Solar Terrestrial services. Part of NOAA's mission, of course, is to provide warnings of geomagnetic disturbances, that is solar disturbances. Is NOAA interested in the private industry proposal to establish a geomagnetic storm warning system by deploying a small satellite between the Sun and the Earth?

Dr. **Knauss**. Yes. On the other hand, you see nothing of this in our 1992 budget because if we go ahead in this along this route, this will be at least a year off. You're absolutely correct, we do believe that NOAA has a responsibility not only for predicting severe storms here on Earth, but also severe storms in space. We have more and more satellites going around the Earth. They are subject to geomagnetic storms. Our power plants on Earth are subject to geomagnetic storms. The magnetic storm of March 1989, which managed to knock one satellite out completely, I think it was a French satellite, did some damage to some of our satellites, at least over a short-term, it knocked out the power in Quebec for some six million people, and these magnetic storms are somewhat correlated in a rough way with the Sun spot cycle and we expect over the next few years to see more magnetic storms than usual.

It is possible, in fact we've had some experience in this at least on a—what shall I say—on a research basis that if you put a small satellite up in the point between the Sun and the Earth where you can observe these solar storm activities sooner, you can get about an hour's head start or hour's notice before they hit the Earth, and that hour's notice, respecting utility companies, is significant. And they are interested in the possibility of possibly putting up a—or having put up, I should say—a satellite that would provide that kind of warning system, and we are interested in it also. How it will be done is under discussion. And, as you indicated, there is a possibility that the utility companies themselves will finance that operation. We will be responsible, of course, for collecting the information and providing the warnings, but the utilities themselves will be responsible for at least the front-end cost of putting that satellite in orbit. There are discussions underway, they are very preliminary, but I am hopeful.

Mr. SCHEUER. Very good.

Okay, Congressman Ritter.

Mr. RITTER. Mr. Chairman, in an effort not to prolong the hearing beyond an hour, I would just ask a question that I know has been interesting to you and to others on the Committee, and that involves the NOAA status as a part of the Department of Commerce. Some have said that it's an orphan and that it really should be independent, like NASA or EPA. In the light of this discussion on satellites and Weather Service and global warming, what are some of your views, Doctor?

Dr. KNAUSS. Well, Congressman, if we're an orphan, we're a very large orphan in the Department of Commerce. We are about 55 percent of the Department of Commerce in terms of dollars and people. So we are by far the largest part of the Department of Commerce. And the Department of Commerce, although it's called "Commerce," has a wide variety of activities which are technical. The National Institutes of Science and Technology, which used to be the old Bureau of Standards, is part of the Department of Commerce; the Census Bureau, which is a highly technical agency, is also part of the Department of Commerce. So the Department of Commerce has a large number of highly technical group parts to it.

One could make a strong argument that NOAA should stay within Commerce. As you look at the issues of environment and business and commerce, you almost have to think about the equivalent of an environmental impact for whatever you're going to do in commerce. Global warming in a sense, you know, is trying to find a proper mix, if you will, between preserving the global environment and increasing the industrial activity of the world. So I think one can argue that if NOAA is going to be a part of an agency, we're as well off in the Department as we would be anywhere else.

Mr. RITTER. Mr. Chairman, I have no further questions, and I yield back the balance of my time.

Mr. SCHEUER. Okay.

Congressman McMillen, from the great State of Maryland.

Mr. MCMILLEN. Thank you, Mr. Chairman. I am sorry that I've been in and out; we've had a lot of hearings and mark-ups this morning. I appreciate the chance to ask a few questions.

Doctor Ostenso, I just wanted to follow-up on some of my interests in the area of marine biotechnology and the last year's legislation that passed the House which authorized the Secretary of Commerce to conduct a marine biotech research, training, and technology study. And then the Senate Appropriations Committee included language in its report which directed NOAA to conduct a similar study.

Could you give me maybe an update on the results now since you've undertaken those studies of America's role in marine biotechnology.

Dr. OSTENSO. Yes, Mr. McMillen, that study is well underway and it should be ready for its review in the very near future.

Mr. MCMILLEN. Do you have any idea of timetables on that?

Dr. OSTENSO. I am reluctant to report a specific time because I haven't checked lately. I think we're talking in terms of a couple of months.

Mr. MCMILLEN. Well, as you know, we're keenly interested in it. We have the Christopher Columbus Center and the Marine Biotechnology, which currently is doing research in this area. Any comments on that facility and its involvement in any of this?

Dr. OSTENSO. Yes, we're following that very closely and with great interest. And one of the reasons this report is taking—not as long as it is, it hasn't been that long, but we are trying to make sure the broad consultation that's involved and experts, such as Doctor Cauldwell and others, are involved in the preparation of the study.

Mr. MCMILLEN. I would just like to add a thought. We went to Australia with former chairman Roe last November, and the work that they are doing in marine biotechnology is very, very exciting. I can't recall the exact numbers, but for a country the size of Australia to commit hundreds of millions of dollars to this field clearly should be evidence to us that we ought to be doing something in this regard at least further than what we are doing. So I encourage your study and look forward to its results.

The other point that I would like to make very quickly is the point of my interest in Landsat. Obviously, with the National Academy of Sciences report on global climate change and so forth and the Committee on Earth and Environmental Services' comments about how Landsat is critical to that, I hope that—I know the Chairman has asked some questions about this—but I hope that we can encourage some other agencies beyond the Department of Defense to show some interest in Landsat 7, 6 and further on. Obviously, if we're going to make progress in this area, we are going to have to have this kind of data. I know you're reticent to make comments about this at this point in time, but I certainly hope that your agency will be supportive.

Mr. SCHEUER. Thank you, Congressman.

Well, Doctor Knauss, and all your colleagues, I want to express our appreciation to you for coming up here and dealing with our questions in such a candid, forthright manner. We thoroughly enjoy working with you. We have great confidence in your bona fides and your professionalism. And you have shown that we can trust you and work with you in the past, and I look forward to the subcommittee working with you in a close, informal, and cooperative way in the future.

Dr. **Knauss**. Thank you, Mr. Chairman.

[The prepared statement of Dr. Knauss follows:]

TESTIMONY
OF
DR. JOHN A. KNAUSS
UNDER SECRETARY FOR OCEANS AND ATMOSPHERE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENT
COMMITTEE ON SCIENCE, SPACE AND TECHNOLOGY
HOUSE OF REPRESENTATIVES

APRIL 11, 1991

Mr. Chairman and Members of the Subcommittee:

Thank you for inviting me to testify on the President's Fiscal Year 1992 Budget request for the atmospheric and satellite programs of the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce.

Accompanying me this morning are Gray Castle, Deputy Under Secretary; Dr. Elbert W. Friday, Jr., Assistant Administrator for Weather Services; Mr. Thomas N. Pyke, Jr., Assistant Administrator for Satellite and Information Services; Dr. Ned Ostenso, Assistant Administrator for Oceanic and Atmospheric Research; and Rodney Weiher, NOAA's Comptroller. Before discussing the highlights of the budget request for atmospheric and satellite programs, Mr. Chairman, I would like to discuss briefly the President's overall request for NOAA.

NOAA is requesting total budget authority of $1,611,991,000 which includes $35,389,000 from the Aviation Weather Trust Fund.

This budget proposal recognizes NOAA's role as what I have called the Earth systems agency. Today, more than ever before, scientists are able to monitor and assess our environment, tackling the mysteries of an earth system that spans from the seafloor to the surface of the sun. Americans, and in fact all the world's 5 billion people, expect clean and abundant water and air; healthy coastal zones and oceans; abundant, wholesome marine resources; and safety from the elements. They are also concerned about the possibility of global change. These are issues at the heart of NOAA's mission.

The President's budget reflects a strong commitment to enhancing the understanding and protection of the environment. NOAA's budget, once again, provides for increased funding. This proposal balances the overriding need to reduce the Federal deficit while maintaining attention to pressing environmental needs. While recognizing the constrained budget environment, I am pleased to report that we were able to provide increased funding for our ongoing high-priority initiatives such as weather service modernization and the Climate and Global Change Program. Additionally, we were able to provide funding for a new but very important NOAA-wide initiative to enhance our ability to properly manage environmental data. This budget will enable us to move forward on a variety of crucial issues.

Let me start with NOAA's contribution to the President's Climate and Global Change Research Program.

Climate and Global Change

NOAA's FY 1992 request for an increase of $30.8 million in the Climate and Global Change Program is focused on reducing many of the scientific uncertainties associated with changing climate. Since its inception, the U.S. Global Change Research Program has rated the need for greater understanding of clouds and the hydrological cycle in the highest priority bracket of research needs. Clouds play a critical role in establishing the overall radiative balance between incoming and outgoing thermal radiation from space. The hydrological cycle is important because the three phases of water (solid, liquid and gas) have enormous impact on the redistribution and storage of energy within the climate system.

The NOAA Climate and Global Change Program emphasizes the development and application of predictive models. At the same time NOAA recognizes the need for more research in several areas to overcome the limitations of current modeling techniques. Accordingly there will be a substantial increase in funding to research directed at improving the representation of atmospheric and hydrologic processes in global climate models. An information management element of this Climate and Global Change Program is being implemented. The users of environmental data, teamed with producers and data managers, can build and maintain these data sets and information needed for the study of global change.

NOAA's long-term commitment to overcoming the limitations of current global climate models is guided by two important international research efforts: the Global Energy and Weather Cycle Experiment (GEWEX) sponsored by the World Climate Research Programme (WCRP); and a project on Biospheric Aspects of the Hydrological Cycle (BAHC) sponsored by the International Geosphere-Biosphere Programme (IGBP). NOAA will make significant contributions to the field experiments including the First International Satellite Cloud Climatology Project (ISCCP) Regional Experiment (FIRE) and the AltoStratus Experiment (ASTEX), both scheduled for 1992, which are designed to increase our understanding of clouds and radiative processes.

NOAA also recognizes a need to bridge the gap between scales significant in modeling discrete processes of the hydrological cycle, especially over land areas, and the scales at which it is practicable to model the general circulation for the climate system for predictive purposes. The NOAA program in 1992 will begin to address this issue by directly fostering the involvement of hydrological researchers in the Climate and Global Change Program.

In addition to working directly on improving the representations of atmospheric and land surface processes in climate models, the NOAA Climate and Global Change Program will place considerable emphasis on improvement of the quality of data needed to verify the outputs from the models. Remote sensing from satellites provides the only practical answer to collecting data on the global scale. This major effort will begin on improving the access to products from NOAA's operational satellites and enhancing the products for climate studies. Special emphasis is being placed on improving the capabilities of measuring precipitation on a global basis from satellites.

The global analyses prepared on a routine basis for operational weather forecasting are also a valuable resource for climate research. However, because they were intended for short-term prediction purposes, these analytical models presently have limited usefulness for long-term climate predictions. NOAA, in collaboration with the academic community, will use an advanced analysis and forecast system to perform an update of past data beginning around 1949-1950, the time when the upper-air rawinsonde network was established. This project has been identified as a project of high priority by the scientific climate research community.

The program will also direct significant resources at improving the basic climate data base. As the Nation's primary repository for environmental data, NOAA will find, assemble, digitize, and where necessary, rescue available data so that long-term data bases can be constructed. This effort includes the development of high-quality, scientifically-accepted reference data sets such as the Comprehensive Ocean-Atmosphere Data Set (COADS) and its upper-air complement. NOAA will also expand its library, cataloging and information reference services related to climate and global change. The principal goal is to improve the access of the research community to this valuable resource. NOAA will work closely with the emerging Earth Observing System Data and Information System (EOSDIS) to ensure that the new data expected from the next generation of environmental satellites are efficiently integrated with existing data and archival systems.

Weather Service Modernization

Another highlight of our budget request is the continuation of the National Weather Service Modernization. The budget requests an increase of $55.6 million for the systems necessary to implement the modernization. I wish to emphasize that having started down the road of acquiring the new equipment and training our workforce in using such equipment, it is important that we maintain our schedule insofar as possible, in order to have all the pieces in place in the most timely and economically efficient manner.

Our goal is to capitalize on the new technologies to improve our weather warning and forecast capabilities. Meeting that goal will improve our ability to inform the public and increase the public's ability to respond. To coordinate the efficient and timely acquisition of these important systems, I have forwarded a reprogramming notice proposing the creation of a Systems Program Office (SPO).

The 1992 budget requests a $3.8 million increase for Next Generation Weather Radar (NEXRAD). The increase will allow us to continue full-scale production, construct facilities, and maintain logistics support. Second, the budget requests a $1.4 million increase for the Automated Surface Observing Systems (ASOS) program to continue the full-scale production contract, fund operations for maintenance of installed units, and train operators. Third, the budget requests a $34.5 million increase for the Advanced Weather Interactive Processing System (AWIPS)/NOAAPORT for the development phase of this system and to provide for the initial operational remapping of GOES data. The budget requests $15.9 million to acquire a Class VII supercomputer at the National Meteorological Center.

Finally, our request contains an increase of $1.8 million for the Modernization and Associated Restructuring Demonstration and Implementation (MARDI). The increase is necessary for planning and evaluation of the MARDI and initial field implementation and training activities.

Satellite Programs

In Fiscal Year 1992, $406.9 million is requested to support NOAA's satellites and data service program activities. The Fiscal Year 1992 budget requests an increase of $101.8 million for the polar-orbiting environmental satellite program. The polar-orbiting system provides quantitative data used as input in the large computer numerical forecast models, which along with image products, support the National Weather Service's (NWS) timely generation of forecasts and warnings. .These satellites are also used to support our Climate and Global Change Program, such as in the measurement of sea surface temperature vegetation and snowcover. The next polar spacecraft launch - NOAA D -is scheduled for this spring. The budget includes funding for integration, test, and launch of the NOAA I, J, K, L, and M polar satellites. These satellites are expected to provide coverage into the late 1990s. The budget request provides funding for polar-orbiting satellites to be launched into both morning and afternoon orbits. The Department is awaiting receipt of the latest official NASA cost estimates for polar orbiting satellites, and will evaluate the need for a 1991 reprogramming to offset any budgetary shortfall expected for the polar satellites in the context of that estimate. NOAA is also beginning work on the polar orbiting system that will succeed this current series of spacecraft.

The Next Generation of Geostationary Operational Environmental Satellites (GOES-NEXT) is designed to provide detailed meteorological information for the tracking of hurricane and severe storm systems in the Western Hemisphere. GOES-NEXT will have sufficient navigation accuracy to overlay the satellite observed information with the information derived from the

Doppler radar systems, and the effective merging of this has been demonstrated in our Denver and Boulder experiments. These experiments suggest it will yield improved forecast and warning results. The GOES-NEXT is expected to provide more detailed information than that currently provided by GOES-7, the present spacecraft, both in terms of spatial resolution, and the number of different spectral windows in which observations can be made. It also should have simultaneous capability of taking image and quantitative sounding data.

The first of the GOES-NEXT satellites, GOES-I, was originally scheduled for launched in late 1989. The series of five spacecraft, excluding launch costs, was to cost $528 million. However, technical difficulties, primarily with the development of the sensors - the imager and the sounder - have delayed the scheduled launch until October of 1992 and increased total spacecraft program cost to over one billion dollars. While NOAA establishes the requirements and funds this program, NASA has the responsibility for development and acquisition of the GOES-NEXT system. Because of the extended delays in the development of the new satellite, NASA has recommended that the performance waiver process be invoked to meet an October 1992 launch date. If such waivers are approved, they will likely result in some performance degradation. We are currently working with NASA to ensure that GOES-I will improve the ability of the National Weather Service to perform its vital public safety mission. I should note that none of the reliability requirements, or any other factors that would affect the lifetime of the spacecraft, will be compromised.

The contractor is proceeding with the testing of the various components of the imaging and sounding instruments. By June 15, NOAA will have a better understanding of the instrument capability that can be supported for an October 1992 launch. While we work toward a launch of GOES-I as soon as possible, we expect the current GOES-7 to last well into 1993. Indeed, we are taking every possible measure to ensure the longest possible life for GOES-7.

We are not, however, ignoring the fact that a premature failure of the present GOES would have a severe impact upon the ability of the NWS to deliver accurate and timely warnings and forecasts of severe weather such as thunderstorms, hurricanes, tornadoes and flash floods. We have developed a No-GOES Plan for which contingency funds are requested in our FY 1992 budget. The Plan consists of using NOAA and DOD polar orbiters to generate composite snapshot images of the United States, increasing the availability of all polar orbiter data throughout weather service offices, relying more on European geostationary satellite coverage over the Atlantic Ocean and increasing the use of conventional radiosonde and buoy data. On March 2, the Europeans launched another GOES-like satellite. The Europeans have agreed to move one Meteosat geostationary satellite over the mid-Atlantic, providing coverage over the eastern portions of North America.

The No-GOES Plan is the best "fix" available for a short-term interruption in GOES coverage. However, you should understand that, even in the aggregate, these measures fall far short of constituting an adequate substitute for GOES-7. We are exploring options to provide alternate sources of data for a longer "No-GOES" period, including evaluation of whether to proceed with a "gap filler" satellite and augmenting observations from other systems. At Secretary Mosbacher's request, NASA recently provided the Secretary, with Administrator Truly present, with a comprehensive GOES-NEXT program review. We are confident that NASA is now devoting the necessary top-level attention and technical staff support to the GOES contract.

Over the past year, NOAA and NASA have continued efforts to assist the GOES contractor and principal subcontractor in overcoming technical development problems on the instruments for the GOES spacecraft. Technical assistance has been provided and performance requirements reduced somewhat in an effort to maintain the current schedule while still meeting fundamental requirements.

The budget request includes an increase of $4.7 million in the Environmental Observing Services line item. This increase provides contingency funding in the event of a loss in GOES satellite coverage ($2.6 million). The balance ($2.1 million) represents an adjustment from GOES system funding to cover costs associated with the operations of the new GOES system.

The last increment of funding necessary for the procurement and launch of Landsat 6 was provided in Fiscal Year 1991 Budget. This system is under development and is currently scheduled for launch in mid-1992. Funds have been obtained from Landsat data user agencies to continue Landsat operations this fiscal year. The Administration is requesting an increase of $7.7 million, a total of $17.2 million, for the continued operation of Landsats 4 and 5.

Data and Information Management

Another high-priority request in 1992 is $5.6 million for NOAA's Earth System Data and Information Management Program. The request includes a proposed 1991 permanent reprogramming of $7.0 million, which will allow us to begin this critical effort this year. With that reprogramming, our 1992 program will be $12.6 million.

NOAA is responsible for managing the most comprehensive, long-term, and up-to-date environmental assemblage of information on the status of the Earth that exists today. Unfortunately, much of these data are at serious risk due to deteriorating storage media. In addition, accessibility to these data are, in many cases, limited. All of this is happening at a time when both the quantity of environmental data and the demands for rapid and easy access to high quality environmental data are growing rapidly.

NOAA has developed a data management initiative designed to address two critical objectives: to rescue NOAA's environmental data currently at risk; and to make NOAA's data and information more accessible to users. To achieve these objectives, we will begin immediately to prevent irretrievable data loss. We intend to migrate data tapes to new media and to migrate paper records to digital format. The proposed increase addresses the objective of information accessibility as well. Currently, less than half of the data are readily accessible. Our goal is to have within 5 years at least 90 percent of NOAA's most frequently used environmental data and information readily accessible to users. We have already begun to build and maintain an automated NOAA Earth System Data Directory which describes both available data and means of access. I am deeply committed to this program; we cannot afford to wait.

NOAA Atmospheric Research

NOAA's atmospheric research is conducted in support of Weather Services Modernization, as described above, and improved understanding and prediction of climate. NOAA also conducts research in support of solar-terrestrial services and provides a second scientific basis on which to base policy decisions on such important environmental issues as air quality.

NOAA's base program in climate research has provided the foundation for our Climate and Global Change Program. I would like to mention here that a large role NOAA scientists played in developing the scientific assessment of climate change for the Intergovernmental Panel on Climate Change (IPCC). We look forward to continuing to provide this type of scientific expertise to future discussions of climate change.

NOAA has the responsibility to provide the Nation with forecasts and warnings of activity on the Sun that could detrimentally affect the Earth. This is becoming a more critical function as the Nation increases space-based activity and becomes more dependent on sophisticated systems, such as communications, navigation, and satellites, that are sensitive to solar and geomagnetic activity. For example, major solar flares and the resultant geomagnetic storms in March 1991 caused the loss of a French Canadian satellite, and caused NOAA and other satellites to experience computer and control problems. Solar activity also causes disruptions in long-line power distribution systems. These storms caused a loss of electrical power to 6 million people in Quebec in March 1989, and equipment damage in the Northeast powergrid associated with the March 1991 storms. Solar activity is expected to be high over the next few years and could result in more such incidents.

The President's Budget requests an increase of $500,000 for NOAA to acquire and analyze solar-terrestrial data from new sources to improve the accuracy and timing of forecasts and warnings of solar disturbances. For example, NOAA will develop techniques for using maps that track disturbances as they propagate from the Sun and will begin to prepare to receive data from the Solar X-ray Imager, an instrument scheduled to be placed on one of the later GOES-I through M satellites.

NOAA's air quality research program will, in FY 1992, continue to monitor air quality trends and acid rain deposition as part of the reauthorized National Acid Precipitation Assessment Program.

Mr. Chairman, this concludes my testimony. I will be glad to respond to questions.

Mr. Scheuer. This hearing is adjourned at the call of the Chair.

[Whereupon, at 12:28 p.m., the committee was adjourned, to reconvene at the call of the Chair.]

APPENDIX

SUBCOMMITTEE MARKUP OF H.R. 2011, THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AUTHORIZATION ACT OF 1991

TUESDAY, APRIL 16, 1991

House of Representatives,
Committee on Science, Space, and Technology,
Subcommittee on Environment,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:39 a.m., in room 2318, Rayburn House Office Building, Hon. James H. Scheuer (chairman of the subcommittee) presiding.

Mr. Scheuer. The subcommittee will come to order.

Today the subcommittee will consider legislation authorizing the National Oceanic and Atmospheric Administration budget for fiscal year 1992.

The Administration has requested an 8 percent increase over the fiscal year 1991 budget for NOAA's programs. I consider this a very healthy and constructive increase in funding by the Administration, given all of our fiscal restraints. So the legislation that we will bring up today endorses that budget submission.

Significant increases have been requested by the Administration for global climate change research, up roughly $31 million, or a two-thirds increase; for the Polar Orbiting Weather Satellite System, up $102 million, or a doubling, a 200 percent increase; and modernization of the Weather Service, up $55 million, or a 36 percent increase. These are very healthy and respectable increases and urgently needed.

However, the budget request for National Weather Service operations has been cut slightly, and at the appropriate time the Chair intends to bring up legislation to restore the cuts in the National Weather Service by transferring a little over $9 million from Satellite Operations.

I still have concerns about NOAA's apparent lack of commitment to and confidence in the LANDSAT Satellite Program, although the satellites up there have far outlived their life expectancy and are giving us a tremendous bang for our buck. I intend to discuss this matter with Chairman George Brown to determine the best strategy to move toward the development of LANDSAT 7, on time and on schedule.

[The discussion draft follows:]

BROWCA051

HLC

4-15-91

[Discussion Draft]
April 11, 1991

102D CONGRESS
1ST SESSION

H. R. ___

IN THE HOUSE OF REPRESENTATIVES

Mr. BROWN of California introduced the following bill; which was referred to the Committee on ____________

A BILL

To authorize appropriations for fiscal year 1992 for programs of the National Oceanic and Atmospheric Administration, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ``National Oceanic and Atmospheric Administration Authorization Act of 1991''.

TITLE I--OCEAN AND COASTAL PROGRAMS

SEC. 101. SHORT TITLE.

This title may be cited as the ``Ocean and Coastal Programs Authorization Act of 1991''.

SEC. 102. FINDINGS AND PURPOSES.

(a) FINDINGS.--The Congress finds and declares the following:

(1) One of the primary missions of the National Oceanic and Atmospheric Administration is the stewardship of our Nation's marine and Great Lakes resources through research and management programs in oceanography and fisheries.

(2) Marine and Great Lakes resources are important to the health, recreation, and standard of living of the people of the United States.

(3) While population, pollution, development and resource utilization pressures on our Nation's coastal regions have increased dramatically during the last decade, funding for oceanographic and fisheries programs has decreased.

(b) PURPOSE.--The purpose of this title is to authorize funding--

(1) for programs which enhance the ability of the United States to wisely use its marine and Great Lakes resources consistent with the importance of these resources to the people of the United States; and

(2) in amounts sufficient to enable the National Oceanic and Atmospheric Administration--

(A) to restore stewardship of marine and Great Lakes resources to a high priority within that administration; and

(B) to reverse the decline of its oceanographic and fisheries programs consistent with statutory requirements for those programs.

SEC. 103. NATIONAL OCEAN SERVICE.

(a) MAPPING, CHARTING, AND GEODESY.--There are authorized to be appropriated to the Secretary of Commerce (hereinafter in this Act referred to as the ``Secretary'') for carrying out mapping, charting, and geodesy activities of the National Oceanic and Atmospheric Administration (including geodetic data collection and analysis) under the Act entitled ``An Act to define the functions and duties of the Coast and Geodetic Survey, and for other purposes'', approved August 6, 1947 (33 U.S.C. 883a et seq.), and any other law, not more than $47,983,000 ~~$60,302,000~~ for fiscal year 1992.

(b) OBSERVATION AND ASSESSMENT.--There are authorized to be appropriated to the Secretary for carrying out observation and assessment activities of the National Oceanic and Atmospheric Administration under the Act entitled ``An Act to define the functions and duties of the Coast and Geodetic Survey, and for other purposes'', approved August 6, 1947 (33 U.S.C. 883a et seq.), and any other law, not more than $67,827,000 ~~$70,334,000~~ for fiscal year 1992.

(c) OCEAN AND COASTAL MANAGEMENT.--There are authorized to be appropriated to the Secretary for carrying out ocean and coastal management activities of the National Oceanic and Atmospheric Administration under title III of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1431 et seq.), the Coastal Zone Management Act of 1972 (33 U.S.C. 1451 et seq.), and any other law, not more than $41,442,000 ~~$69,878,000~~ for fiscal year 1992. Amounts appropriated pursuant to this subsection shall not be used for activities authorized separately under the Deep Seabed Hard Mineral Resources Act (30 U.S.C. 1401 et seq.).

SEC. 104. OCEANIC AND ATMOSPHERIC PROGRAMS.

(a) CLIMATE AND AIR QUALITY RESEARCH.--

(1) AUTHORIZATION OF APPROPRIATIONS.--There are authorized to be appropriated to the Secretary for carrying out climate and air quality research duties of the National Oceanic and Atmospheric Administration, including for interannual and seasonal climate research,

long-term climate and air quality research, and the National Climate Program, not more than $111,695,000 for fiscal year 1992.

(2) NATIONAL CLIMATE PROGRAM.--Of the sums authorized under paragraph (1), not more than $3,700,000 are authorized to be appropriated for the activities of the National Climate Program and the Regional Climate Centers.

(b) ATMOSPHERIC PROGRAMS.--(1) There are authorized to be appropriated to the Secretary for carrying out atmospheric research duties of the National Oceanic and Atmospheric Administration not more than $37,007,000 for fiscal year 1992, including for research for developing improved prediction capabilities for atmospheric processes, and solar-terrestrial services and research.

(2) Of the sums authorized under paragraph (1), $3,000,000 for fiscal year 1992 are authorized to be appropriated for the Stormscale Operational and Research Meteorology (STORM) program.

(c) CLIMATE SERVICES SYSTEM MODERNIZATION.--

(1) IMPLEMENTATION PLAN.--The Secretary shall direct the Office of the Chief Scientist of the National Oceanic and Atmospheric Administration to prepare and submit to the Congress, not later than one year after the date of the enactment of this Act, a plan for the implementation

of a nationwide climate services system and applied climatology program. Such plan shall include detailed requirements and schedules for the improvement of (A) the timeliness of climate services, (B) the spatial coverage of weather observational networks, (C) the quality control of climate data, (D) access to climate data, (E) the use of climate data, (F) the coordination of Regional Climate Centers with Federal climate centers, and (G) private sector participation in providing climate services.

(2) FUNDING.--Of the sums authorized under subsection (a)(1), not more than $200,000 are authorized to be appropriated for fiscal year 1992 for the purposes of implementing paragraph (1) of this subsection.

(d) OCEAN AND GREAT LAKES RESEARCH.--There are authorized to be appropriated to the Secretary for carrying out ocean and Great Lakes research activities of the National Oceanic and Atmospheric Administration under the Act entitled ``An Act to define the function and duties of the Coast and Geodetic Survey, and for other purposes'', approved August 6, 1947 (33 U.S.C. 883a et seq.), the Act entitled ``An Act to increase the efficiency and reduce the expenses of the Signal Corps of the Army, and to transfer the Weather Bureau to the Department of Agriculture'', approved October 1, 1890 (15 U.S.C. 311 et seq.), the National Sea Grant College Program

Act (33 U.S.C. 1121 et seq.), and any other law involving those activities, not more than ~~$83,139,000~~ $38,074,000 for fiscal year 1992.

~~(e) COOPERATIVE INSTITUTE FOR LIMNOLOGY AND ECOSYSTEMS RESEARCH.--In addition to amounts authorized under subsection (d), there are authorized to be appropriated to the Office of Oceanic and Atmospheric Research of the National Oceanic and Atmospheric Administration not more than $250,000 for fiscal year 1992, for use by the Cooperative Institute for Limnology and Ecosystems Research (established in partnership with the State of Michigan and the Great Lakes Environmental Research Laboratory) for research and the preparation of a 5-year plan for research and development of the Institute.~~

~~SEC. 105. AQUATIC NUISANCE SPECIES RESEARCH AND CONTROL.~~

~~In addition to amounts otherwise authorized by this Act, there are authorized to be appropriated to the Secretary, for use in accordance with the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990--~~

~~(1) not more than $3,875,000 for the competitive grant program under the National Sea Grant College Program for research on the prevention and control of aquatic nuisance species, of which not more than $2,500,000 is authorized for grants for research in the Great Lakes region;~~

~~(2) not more than $500,000 for the National Sea Grant~~

~~Marine Advisory Service for technical assistance and public education related to the infestation of zebra mussels in the Great Lakes;~~

~~(3) not more than $1,000,000 for the National Ocean Service for--~~

~~(A) assessing the environmental effects of ballast water exchange on the diversity and abundance of native species in the waters of the United States;~~

~~(B) identifying areas within the waters of the United States and the exclusive economic zone, if any, where the exchange of ballast water does not pose a threat of infestation or spread of aquatic nuisance species in the waters of the United States; and~~

~~(C) determining the need for controls on vessels entering the waters of the United States (other than the Great Lakes) to minimize the risk of unintentional introduction and dispersal of aquatic nuisance species in those waters;~~

~~(4) not more than $5,000,000 for use by the Under Secretary of Commerce for Oceans and Atmosphere to develop and carry out a prevention and control program for aquatic nuisance species in United States waters, including for monitoring and for dissemination of information; and~~

~~(5) not more than $1,125,000 for use by the Great Lakes Environmental Research Laboratory in Ann Arbor, Michigan, to conduct zebra mussel prevention, monitoring, and control research.~~

SEC. 106. PROGRAM SUPPORT.

(a) ADMINISTRATION AND SERVICES.--There are authorized to be appropriated to the Secretary for carrying out executive direction and administrative activities of the National Oceanic and Atmospheric Administration (including management, administrative support, provision of retired pay of National Oceanic and Atmospheric Administration commissioned officers, and policy development) under the Act entitled ``An Act to clarify the status and benefits of commissioned officers of the National Oceanic and Atmospheric Administration, and for other purposes'', approved December 31, 1970 (33 U.S.C. 587-1 et seq.), and any other law involving those activities, not more than ~~$72,837,000~~ $72,084,000 for fiscal year 1992.

(b) FACILITIES.--There are authorized to be appropriated to the Secretary for acquisition, construction, maintenance, and operation of facilities of the National Oceanic and Atmospheric Administration under any law involving those activities, not more than ~~$10,~~294,000 $9,898,000 for fiscal year 1992.

(c) MARINE SERVICES.--

(1) IN GENERAL.--There are authorized to be appropriated to the Secretary for carrying out marine

services activities of the National Oceanic and Atmospheric Administration (including ship operations, maintenance, and support) under the Act entitled ``An Act to define the functions and duties of the Coast and Geodetic Survey, and for other purposes'', approved August 6, 1947 (33 U.S.C. 883a et seq.), and any other law involving those activities, not more than $65,743,000 ~~$65,912,000~~ for fiscal year 1992.

~~(2) NOAA FLEET.--In addition to amounts authorized by paragraph (1), there are authorized to be appropriated to the Secretary for modernization of the National Oceanic and Atmospheric Administration fleet--~~

~~(A) not more than $11,400,000 for service life extensions and critical maintenance;~~

~~(B) not more than $14,300,000 for the replacement of fisheries research vessels and the design of new oceanographic vessels; and~~

~~(C) not more than $4,300,000 for instrument upgrades and purchase of equipment for research vessels.~~

(d) AIRCRAFT SERVICES.--There are authorized to be appropriated to the Secretary for carrying out aircraft services activities of the National Oceanic and Atmospheric Administration (including aircraft operations, maintenance, and support) under the Act entitled ``An Act to increase the efficiency and reduce the expenses of the Signal Corps of the Army, and to transfer the Weather Bureau to the Department of Agriculture'', approved October 1, 1890 (15 U.S.C. 311 et seq.), and under any other law involving those activities, not more than $8,550,000 ~~$9,365,000~~ for fiscal year 1992.

SEC. 107. NOTICE OF REPROGRAMMING OR OBLIGATION FOR NEW PROGRAM.

(a) Notice of Reprogramming.--The Secretary shall not reprogram an amount greater than $500,000 of funds appropriated for an activity of the National Oceanic and Atmospheric Administration unless, not later than 30 days before the effective date of the reprogramming, the Secretary provides notice of the reprogramming to the appropriate authorizing committees, and the Committee on Appropriations, of the House of Representatives and of the Senate.

(b) Notice of Obligation for New Program.--The Secretary shall not obligate any amount for a program of the National Oceanic and Atmospheric Administration that is proposed or developed after the date of the enactment of this Act unless, not later than 90 days before the effective date of that obligation, the Secretary provides notice of the obligation to the appropriate authorizing committees of the House of Representatives and of the Senate, including in the notice--

(1) a description of the program;

(2) a statement of the purpose and goal of the

program; and

(3) an accounting of expenditures proposed for the program.

SEC. 108. PRICE FREEZE ON CHARTS AND OTHER PRODUCTS OF NOAA.

Notwithstanding section 1307 of title 44, United States Code, the price of nautical charts or other nautical products produced or published by the National Oceanic and Atmospheric Administration and sold after the date of the enactment of this Act shall be the price of that type of chart or product on the date of enactment of this Act.

SEC. 109. REPORT ON SATELLITE OCEANOGRAPHY.

(a) IN GENERAL.--The Committee on Earth and Environmental Sciences of the Federal Coordinating Council for Science, Engineering, and Technology (hereinafter in this section referred to as the ``Committee''), in consultation with Federal, academic, and commercial users of remotely sensed data, shall consider and develop detailed findings and recommendations regarding--

(1) the most urgent current needs of oceanographic researchers within the Federal Government, the academic community, and the private sector, for remote sensing capabilities and remotely sensed data, including findings regarding the present inadequacies in these capabilities and data; and

(2) the major goals of satellite oceanography for the

next 10 years.

(b) REPORT.--Not later than 1 year after the date of the enactment of this Act, the Committee shall submit to the House of Representatives and the Senate a report which describes the findings of the Committee. The report shall include recommendations for, or a description of actions being taken toward--

(1) correcting inadequacies in remote sensing capabilities;

(2) improving availability of remotely sensed data; and

(3) achieving the major goals of satellite oceanography developed pursuant to subsection (a)(2).

SEC. 110. REPORT ON SATELLITE CAPABILITIES FOR FISHERIES ENFORCEMENT.

Not later than 6 months after the date of the enactment of this Act, the Under Secretary of Commerce for Oceans and Atmosphere, in consultation with the heads of other Federal agencies, shall prepare and submit to the House of Representatives and the Senate a report describing how current and planned satellite capabilities of the Federal Government can aid in the enforcement of Federal fisheries laws and the implementation of international fisheries conservation programs.

SEC. 111. COOPERATIVE INSTITUTE OF FISHERIES OCEANOGRAPHY.

(a) ESTABLISHMENT.--There is established within the National Oceanic and Atmospheric Administration a Cooperative Institute of Fisheries Oceanography (hereinafter in this section referred to as the ``Institute´´), in partnership with Duke University and the Consolidated University of North Carolina.

(b) AUTHORIZATION.--There are authorized to be appropriated to the Secretary not more than $525,000 for fiscal year 1992, to remain available until expended, for use for activities of the Institute.

(c) USE OF AMOUNTS APPROPRIATED.--Amounts appropriated under the authority of subsection (b) may be used for--

(1) administration of the Institute;

(2) research conducted by the Institute; and

(3) preparation of a 5-year plan for research and for development of the Institute.

(d) REPORT.--Within one year after the date of the enactment of this Act, the Institute shall submit to the Congress and the Under Secretary of Commerce for Oceans and Atmosphere the plan developed pursuant to subsection (c)(3).

SEC. 112. AUTHORITY TO ACQUIRE REAL PROPERTY AND IMPROVEMENTS IN HAMPTON ROADS, VIRGINIA.

(a) IN GENERAL.--The Under Secretary of Commerce for Oceans and Atmosphere may acquire, by exchange or lease-purchase or both, real property and improvements thereto in the area of Newport News-Norfolk, Virginia, for the purpose of consolidating facilities of the National Oceanic and Atmospheric Administration.

(b) CONDITIONS.--The authority of the Under Secretary to acquire real property or improvements under subsection (a) shall be subject to the following conditions:

(1) All actions taken by the Under Secretary to acquire such property or improvements must be in the best interests of the United States.

(2) In any case in which such acquisition is by lease-purchase--

(A) the term of the lease may not exceed 30 years;

(B) title to such property or improvements will be transferred to the United States upon expiration of such term; and

(C) obligations of funds to carry out such lease-purchase shall--

(i) be without regard to section 1341(a)(1)(B) of title 31, United States Code, and section 3733 of the Revised Statutes of the United States (41 U.S.C. 12); and

(ii) be treated as budget authority and outlays for a fiscal year only to the extent that expenditures pursuant to such obligations are made in the fiscal year.

SEC. 113. AUDIT OF DAMAGE ASSESSMENT PROGRAM.

(a) AUDIT REQUIREMENT.--Not later than January 31 of each of 1991, 1992, 1993, and 1994, the Comptroller General shall submit to the Congress an audit of--

(1) the Damage Assessment program of the National Oceanic and Atmospheric Administration; and

(2) the Damage Assessment and Restoration Revolving Fund.

(b) AUDIT CONTENTS.--Each audit under this section shall include for the period covered by the audit--

(1) a statement of all funds appropriated to the Damage Assessment program, including--

(A) amounts appropriated directly to the Operations, Research, and Facilities Account, and

(B) amounts transferred to that account from the Damage Assessment and Restoration Revolving Fund;

(2) a statement of funds transferred to the Damage Assessment program through reprogramming of funds from other programs;

(3) an accounting of the uses of all funds available to the Damage Assessment program, including an accounting of repayments made, if any, to other programs from which funds have been reprogrammed to carry out Damage Assessment program activities; and

(4) a statement of all deposits into and transfers from the Damage Assessment and Restoration Revolving Fund.

TITLE II--NATIONAL WEATHER SERVICE

SEC. 201. OPERATIONS AND RESEARCH.

(a) There are authorized to be appropriated to the Secretary to enable the National Oceanic and Atmospheric Administration to carry out the operations and research duties of the National Weather Service, $308,065,000 for fiscal year 1992. Such duties include meteorological, hydrological, and oceanographic public warnings and forecasts, as well as applied research in support of such warnings and forecasts, but do not include duties described in section 202.

(b)(1) The Secretary shall direct the Office of the Chief Scientist of the National Oceanic and Atmospheric Administration to establish an advisory committee of tropical cyclone research experts to make recommendations for Atlantic tropical cyclone research activities and Atlantic tropical cyclone reconnaissance procedures.

(2) The Secretary, working jointly with other agencies as appropriate and utilizing the expertise of the advisory committee established under paragraph (1), shall establish a 5-year program for collecting operational and reconnaissance data, conducting research, and analyzing data on Atlantic

tropical cyclones to assist the forecast and warning program and increase the understanding of the causes and behavior of Atlantic tropical cyclones.

(3) Within 120 days after the date of enactment of this Act, the Secretary shall develop and submit to the Congress a management plan for the program established under paragraph (2) which shall include organizational structure, goals, major tasks, and funding profiles for the five year duration of the program.

(c) Of the sums authorized under subsection (a) of this section, $250,000 for fiscal year 1992 are authorized to be appropriated for the purposes of implementing subsection (b) of this section.

SEC. 202. SYSTEMS ACQUISITION.

There are authorized to be appropriated to the Secretary to enable the National Oceanic and Atmospheric Administration to carry out the public warning and forecast systems duties of the National Weather Service, $209,725,000 for fiscal year 1992. Such duties include the development, acquisition, and implementation of major public warning and forecast systems.

TITLE III--NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE

SEC. 301. SATELLITE OBSERVING SYSTEMS.

(a) There are authorized to be appropriated to the Secretary to enable the National Oceanic and Atmospheric

Administration to carry out its satellite observing systems duties $362,359,000 ~~$371,530,000~~ for fiscal year 1992. Such duties include spacecraft procurement, launch, and associated ground station system changes involving polar orbiting and geostationary environmental satellites and land remote sensing satellites, as well as the operation of such satellites.

(b) Of the sums authorized under subsection (a) of this section, $17,200,000 for fiscal year 1992 are authorized to be appropriated for the operation of the Landsat satellite system.

SEC. 302. ENVIRONMENTAL DATA MANAGEMENT.

There are authorized to be appropriated to the Secretary to enable the National Oceanic and Atmospheric Administration to fund those duties relating to data and information services, $35,200,000 for fiscal year 1992. Such duties include climate data services, ocean data services, geophysical data services, and environmental assessment and information services.

SEC. 303. TRANSFER OF ARCHIVING RESPONSIBILITY FOR LAND REMOTE-SENSING DATA.

(a) FINDINGS.--The Congress finds that--

(1) section 602 of the Land Remote-Sensing Commercialization Act of 1984 (15 U.S.C. 4272) directs the Secretary of Commerce to provide for the archiving of land remote-sensing data for historical, scientific, and

technical purposes, including long-term global environmental monitoring;

(2) the Secretary of Commerce currently provides for the archiving of Landsat data at the Department of the Interior's EROS Data Center, which is consistent with the requirement of such section 602(g) to use existing Federal Government facilities to the maximum extent practicable in carrying out this archiving responsibility;

(3) the Landsat data collected since 1972 are an important global data set for monitoring and assessing land resources and global change;

(4) the Secretary of the Interior maintains archives of aerial photography, digital cartographic data, and other Earth science data at the EROS Data Center that also are important data sets for monitoring and assessing land resources and global change;

(5) it is appropriate to transfer authority for section 602 of the Land Remote-Sensing Commercialization Act of 1984 to the Secretary of the Interior; and

(6) the Secretary of the Interior should explore ways to facilitate the use of archiving data for research purposes consistent with other provisions of such Act.

(b) AMENDMENTS.--The Land Remote-Sensing Commercialization Act of 1984 is amended--

(1) in section 402(b)(4), by inserting ``of the Interior'' after ``Secretary'';

(2) in sections 602 (b), (c), (d), (f), and (g), by inserting ``of the Interior'' after ``Secretary'' each place it appears; and

(3) by adding at the end of section 602 the following new subsection:

``(h) In carrying out the functions of this section, the Secretary of the Interior shall consult with the Secretary to ensure that archiving activities are consistent with the terms and conditions of any contract or agreement entered into under title II, III, or V of this Act and with any license issued under title IV of this Act.''.

TITLE IV--NOAA BUDGET PROCESS

SEC. 401. TWO YEAR BUDGET CYCLE.

(a) SUBMISSION OF 2-YEAR BUDGET BY PRESIDENT.--The President shall--

(1) include in the budget for fiscal year 1993 submitted to the Congress pursuant to section 1105 of title 31, United States Code, a single proposed budget for the National Oceanic and Atmospheric Administration covering fiscal years 1993 and 1994; and

(2) include in each budget submitted pursuant to that section for each odd-numbered fiscal year after fiscal year 1993 a single proposed budget for that

administration covering the fiscal year for which the budget is submitted and the succeeding fiscal year.

(b) REPORT.--Not later than October 1, 1991, the Secretary shall submit to the Committee on Merchant Marine and Fisheries and the Committee on Appropriations of the House of Representatives, and to the Committee on Commerce, Science, and Transportation and the Committee on Appropriations of the Senate, a report containing--

(1) the Secretary's views on the advantages and disadvantages of operating the National Oceanic and Atmospheric Administration on a 2-year budget cycle;

(2) the Secretary's plans for converting to a 2-year budget cycle; and

(3) a description of the impediments (statutory or otherwise) to converting the operations of the National Oceanic and Atmospheric Administration to a 2-year budget cycle beginning in fiscal year 1993.

(c) BUDGET ESTIMATES.--Not later than 30 days after the date on which the President submits to the Congress a budget under section 1105 of title 31, United States Code, which includes a proposed 2-year budget for the National Oceanic and Atmospheric Administration, the Secretary shall submit to the Committee on Appropriations and the Committee on Merchant Marine and Fisheries of the House of Representatives and the Committee on Appropriations and the Committee on Commerce, Science, and Transportation of the Senate, detailed cost estimates of the fiscal years covered by that 2-year budget.

Mr. **Scheuer**. At this time I would like to recognize the distinguished ranking Republican member of this subcommittee, the Honorable Don Ritter of Pennsylvania.

Mr. **Ritter**. Thank you, Mr. Chairman. I would like to associate myself with your remarks and mention that the business of NOAA these days is more important than ever. And, in a desire to get on with the markup, I yield back the balance of my time.

Mr. **Scheuer**. I thank the gentleman.

I now ask unanimous consent that the subcommittee consider the Scheuer committee print, authorizing the Atmospheric and Satellite Programs and functions of the National Oceanic and Atmospheric Administration for fiscal year 1992.

[No response.]

Mr. **Scheuer**. Hearing no objection, the Chair now calls up the committee print for consideration. The Clerk will read the committee print.

The **Clerk**. To authorize appropriations for certain Atmospheric and Satellite Programs and functions of the National Oceanic and Atmospheric Administration, and for other purposes.

Mr. **Scheuer**. I ask unanimous consent that the committee print be considered as read and open for discussion.

[No response.]

Mr. **Scheuer**. There being no objection, it is so ordered.

The committee print before us authorizes appropriations for the Atmospheric and Satellite Programs of NOAA for fiscal year 1992. These programs include the activities of the National Weather Service; the National Environmental Satellite Data and Information Service; and the Atmospheric Research Programs of the Office of Oceanic and Atmospheric Research.

As I mentioned in my opening statement, NOAA's budget request for fiscal year 1990 [sic] is an increase of 8 percent, or $140 million, over the appropriation for fiscal year 1991. The committee print before us today endorses that increase by authorizing the same overall budget requested in the President's budget. However, this proposal restores cuts in the National Weather Service by transferring $9,171,000 from Satellite Operations to the National Weather Service. The purpose of this transfer is to maintain current operations for agricultural weather services, fire weather services, fruit frost warnings, Colorado River Basin flood warnings, and Susquehanna River Basin flood warnings, and we are doing that in response to a multitude of expressions of concern from our colleagues of both parties and from all over the country.

A complete list of the restorations has been distributed to all members of the subcommittee.

Are there any members of the subcommittee who would like to make a further statement?

[No response.]

Mr. **Scheuer**. All right. Are there any amendments to the proposal before us?

[No response.]

Mr. **Scheuer**. All right. If not, does anyone wish to be heard on the amendment?

Mr. **Ritter**. Mr. Chairman.

Mr. **Scheuer**. Yes, Mr. Ritter.

Mr. RITTER. Mr. Chairman, at this time I move that the Subcommittee report the bill. Furthermore, I move to instruct the staff to prepare the Subcommittee report, to make technical and conforming amendments, and move that the Chairman take all necessary steps to bring the bill before the Full Committee for consideration.

Mr. SCHEUER. All right, then.

Mr. RITTER. And, furthermore, I move that a clean bill be prepared by the Chairman for introduction in the House and further consideration by the Committee.

Mr. SCHEUER. Okay. We will have a roll call vote on Congressman Ritter's—we will have a voice vote on Congressman Ritter's suggestion.

All those in favor, say aye.

[Chorus of ayes.]

Mr. SCHEUER. All those opposed, say nay.

[No response.]

Mr. SCHEUER. The ayes have it and the bill is reported to the full committee with the usual instructions, as Congressman Ritter outlined.

Now I ask unanimous consent that the subcommittee consider the Brown committee print, authorizing the programs of the National Oceanic and Atmospheric Administration for fiscal year 1992.

[No response.]

Mr. SCHEUER. Hearing no objection, the Chair now calls up the committee print for consideration. The Clerk will please read the committee print.

The CLERK. To authorize appropriations for fiscal year 1992 for programs of the National Oceanic and Atmospheric Administration and for other purposes.

Mr. SCHEUER. I ask unanimous consent that the committee print be considered as read and open for discussion.

[No response.]

Mr. SCHEUER. There being no objection, it is so ordered.

The committee print before us authorizes all of the programs of NOAA except the Marine Fisheries Programs. This bill, when introduced, will be jointly referred to the Science Committee and the Merchant Marine and Fisheries Committee. It is our desire that this bill lay the groundwork for a joint committee compromise on an omnibus NOAA authorization bill.

However, should we not be able to reach a compromise, we will proceed with the legislation we previously approved, which will be referred only to the Science Committee.

Again, the only difference between this bill and the President's budget request is the transfer of $9,171,000 from Satellite Operations to the National Weather Service. The purpose of this transfer, as I said before, is to respond to the concerns of many, many Members of Congress from both sides of the aisle and from all parts of the country. Their concern is that the current level of services be maintained, as we discussed previously.

Do any members have any further opening statements or requests for information?

[No response.]

Mr. **Scheuer**. Okay. Are there any amendments to the proposal before us?

[No response.]

Mr. **Scheuer**. All right. Then the question is on the adoption of the proposal.

Does anybody have any report language that they wish to include in the committee report?

[No response.]

Mr. **Scheuer**. All right. Then the question is on reporting the bill to the full committee, and I would yield to Congressman Ritter to move that the bill, as amended, be reported.

Mr. **Ritter**. Thank you, Mr. Chairman. I move that the Subcommittee report the bill. Furthermore, I move to instruct the staff to prepare the Subcommittee report, to make technical and conforming amendments, and move that the Chairman take all necessary steps to bring the bill before the Full Committee for consideration. Furthermore, I move that a clean bill be prepared by the Chairman for introduction in the House and further consideration by the Committee.

Mr. **Scheuer**. All right. We will have a voice vote. All of those in support of the bill, please say aye.

[Chorus of ayes.]

Mr. **Scheuer**. All those opposed, say nay.

[No response.]

Mr. **Scheuer**. The ayes have it and the bill is reported to the full committee with the usual instructions, as Congressman Ritter moved.

[Whereupon, at 11:10 a.m., the subcommittee adjourned, to reconvene at the call of the Chair.]

FULL COMMITTEE MARKUP OF H.R. 2011, THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AUTHORIZATION ACT OF 1991

WEDNESDAY, MAY 8, 1991.

House of Representatives,
Committee on Science, Space, and Technology,
Washington, DC.

The committee met, pursuant to notice, at 10 a.m., in room 2318, Rayburn House Office Building, Hon. George E. Brown, Jr. (chairman of the committee) presiding.

Mr. Brown. The committee will come to order.

This morning the committee will take up the consideration of H.R. 2042, Federal Fire Prevention and Control Act Authorization, H.R. 656, the High-Performance Computing Act, and H.R. 2011, the National Oceanic and Atmospheric Administration Authorization Act.

The markups which are on the docket, EPA's R&D authorization and the DOE authorization, will necessarily be postponed and rescheduled for a very early meeting. The session this morning is likely to be curtailed because of the joint meeting of the House and Senate to hear General Schwartzkopf. With a little discipline I think we may be able to get through all the three bills I mentioned, which are relatively noncontroversial.

The Chair will now put before the committee the NOAA bill. We will take up H.R. 2011, the National Oceanic and Atmospheric Administration Authorization Act. The programs and services of NOAA have a daily positive impact on all of our lives, and I ask unanimous consent that the remainder of my statement be put in the record at this point.

[The prepared statement of Mr. Brown follows:]

STATEMENT OF HON. GEORGE E. BROWN, JR.

H.R. 2011

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AUTHORIZATION ACT OF 1991

MAY 8, 1991

TODAY, THE COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY WILL CONSIDER H.R. 2011, THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) AUTHORIZATION ACT OF 1991.

THE PROGRAMS AND SERVICES OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) HAVE A DAILY, POSITIVE IMPACT ON ALL OUR LIVES.

NOAA, THROUGH THE NATIONAL WEATHER SERVICE, PROVIDES WARNINGS OF HAZARDOUS AND SEVERE WEATHER SUCH AS TORNADOES, HURRICANES, FLOODS, AND SNOWSTORMS.

THE IMAGES OF THE EARTH THAT WE SEE ON THE TELEVISION WEATHER REPORTS ARE PROVIDED BY NOAA GEOSTATIONARY WEATHER SATELLITES.

NOAA'S CLIMATE AND GLOBAL CHANGE RESEARCH PROGRAM HOLDS THE PROMISE OF PREVENTING FUTURE FAMINES AND REGIONAL CATASTROPHES THAT MAY RESULT FROM UNMITIGATED GLOBAL WARMING.

ENVIRONMENTAL MONITORING AND RESEARCH IN CRITICAL AREAS SUCH AS OCEAN POLLUTION, OIL SPILL IMPACT ASSESSMENTS, AND GLOBAL CLIMATE CHANGE ARE CONDUCTED BY NOAA'S OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH.

ENVIRONMENTAL MONITORING AND RESEARCH IN CRITICAL AREAS SUCH AS OCEAN POLLUTION, OIL SPILL IMPACT ASSESSMENTS, AND GLOBAL CLIMATE CHANGE ARE CONDUCTED BY NOAA'S OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH.

I WANT TO COMPLIMENT THE CHAIRMAN OF THE SUBCOMMITTEE ON ENVIRONMENT, MR. SCHEUER, AND THE RANKING REPUBLICAN OF THE SUBCOMMITTEE, MR. RITTER, FOR THEIR HARD WORK ON THIS LEGISLATION.

WE INTEND TO WORK CLOSELY WITH THE COMMITTEE ON MERCHANT MARINE AND FISHERIES TO BRING A COMPREHENSIVE NOAA AUTHORIZATION BILL TO THE FULL, AND I COMPLIMENT THE SUBCOMMITTEE ON ENVIRONMENT FOR INITIATING THIS COOPERATIVE EFFORT.

[A copy of H.R. 2011 follows:]

I

102d CONGRESS
1st Session

H. R. 2011

To authorize appropriations for fiscal year 1992 for programs of the National Oceanic and Atmospheric Administration, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

April 23, 1991

Mr. Scheuer introduced the following bill; which was referred to the Committees on Merchant Marines and Fisheries and Science, Space, and Technology

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A BILL

To authorize appropriations for fiscal year 1992 for programs of the National Oceanic and Atmospheric Administration, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "National Oceanic and Atmospheric Administration Authorization Act of 1991".

TITLE I—OCEAN AND COASTAL PROGRAMS

SEC. 101. SHORT TITLE.

This title may be cited as the "Ocean and Coastal Programs Authorization Act of 1991".

SEC. 102. FINDINGS AND PURPOSES.

(a) FINDINGS.—The Congress finds and declares the following:

(1) One of the primary missions of the National Oceanic and Atmospheric Administration is the stewardship of our Nation's marine and Great Lakes resources through research and management programs in oceanography and fisheries.

(2) Marine and Great Lakes resources are important to the health, recreation, and standard of living of the people of the United States.

(3) While population, pollution, development and resource utilization pressures on our Nation's coastal regions have increased dramatically during the last decade, funding for oceanographic and fisheries programs has decreased.

(b) PURPOSE.—The purpose of this title is to authorize funding—

(1) for programs which enhance the ability of the United States to wisely use its marine and Great

Lakes resources consistent with the importance of these resources to the people of the United States; and

(2) in amounts sufficient to enable the National Oceanic and Atmospheric Administration—

(A) to restore stewardship of marine and Great Lakes resources to a high priority within that administration; and

(B) to reverse the decline of its oceanographic and fisheries programs consistent with statutory requirements for those programs.

SEC. 103. NATIONAL OCEAN SERVICE.

(a) MAPPING, CHARTING, AND GEODESY.—There are authorized to be appropriated to the Secretary of Commerce (hereinafter in this Act referred to as the "Secretary") for carrying out mapping, charting, and geodesy activities of the National Oceanic and Atmospheric Administration (including geodetic data collection and analysis) under the Act entitled "An Act to define the functions and duties of the Coast and Geodetic Survey, and for other purposes", approved August 6, 1947 (33 U.S.C. 883a et seq.), and any other law, not more than $47,983,000 for fiscal year 1992.

(b) OBSERVATION AND ASSESSMENT.—There are authorized to be appropriated to the Secretary for carrying out observation and assessment activities of the National Oceanic and Atmospheric Administration under the Act entitled "An Act to define the functions and duties of the Coast and Geodetic Survey, and for other purposes", approved August 6, 1947 (33 U.S.C. 883a et seq.), and any other law, not more than $67,827,000 for fiscal year 1992.

(c) OCEAN AND COASTAL MANAGEMENT.—There are authorized to be appropriated to the Secretary for carrying out ocean and coastal management activities of the National Oceanic and Atmospheric Administration under title III of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1431 et seq.), the Coastal Zone Management Act of 1972 (33 U.S.C. 1451 et seq.), and any other law, not more than $41,442,000 for fiscal year 1992. Amounts appropriated pursuant to this subsection shall not be used for activities authorized separately under the Deep Seabed Hard Mineral Resources Act (30 U.S.C. 1401 et seq.).

SEC. 104. OCEANIC AND ATMOSPHERIC PROGRAMS.

(a) CLIMATE AND AIR QUALITY RESEARCH.—

(1) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary for carrying out climate and air quality research duties of the National Oceanic and Atmos-

pheric Administration, including for interannual and seasonal climate research, long-term climate and air quality research, and the National Climate Program, not more than $111,695,000 for fiscal year 1992.

(2) NATIONAL CLIMATE PROGRAM.—Of the sums authorized under paragraph (1), not more than $3,700,000 are authorized to be appropriated for the activities of the National Climate Program and the Regional Climate Centers.

(b) ATMOSPHERIC PROGRAMS.—(1) There are authorized to be appropriated to the Secretary for carrying out atmospheric research duties of the National Oceanic and Atmospheric Administration not more than $37,007,000 for fiscal year 1992, including for research for developing improved prediction capabilities for atmospheric processes, and solar-terrestrial services and research.

(2) Of the sums authorized under paragraph (1), $3,000,000 for fiscal year 1992 are authorized to be appropriated for the Stormscale Operational and Research Meteorology (STORM) program.

(c) CLIMATE SERVICES SYSTEM MODERNIZATION.—

(1) IMPLEMENTATION PLAN.—The Secretary shall direct the Office of the Chief Scientist of the National Oceanic and Atmospheric Administration

to prepare and submit to the Congress, not later than one year after the date of the enactment of this Act, a plan for the implementation of a nationwide climate services system and applied climatology program. Such plan shall include detailed requirements and schedules for the improvement of (A) the timeliness of climate services, (B) the spatial coverage of weather observational networks, (C) the quality control of climate data, (D) access to climate data, (E) the use of climate data, (F) the coordination of Regional Climate Centers with Federal climate centers, and (G) private sector participation in providing climate services.

(2) FUNDING.—Of the sums authorized under subsection (a)(1), not more than $200,000 are authorized to be appropriated for fiscal year 1992 for the purposes of implementing paragraph (1) of this subsection.

(d) OCEAN AND GREAT LAKES RESEARCH.—There are authorized to be appropriated to the Secretary for carrying out ocean and Great Lakes research activities of the National Oceanic and Atmospheric Administration under the Act entitled "An Act to define the function and duties of the Coast and Geodetic Survey, and for other purposes", approved August 6, 1947 (33 U.S.C. 883a et seq.), the Act entitled "An Act to increase the efficiency and reduce the expenses of the Signal Corps of the Army, and to transfer the Weather Bureau to the Department of Agriculture", approved October 1, 1890 (15 U.S.C. 311 et seq.), the National Sea Grant College Program Act (33 U.S.C. 1121 et seq.), and any other law involving those activities, not more than $83,139,000 for fiscal year 1992.

SEC. 105. PROGRAM SUPPORT.

(a) ADMINISTRATION AND SERVICES.—There are authorized to be appropriated to the Secretary for carrying out executive direction and administrative activities of the National Oceanic and Atmospheric Administration (including management, administrative support, provision of retired pay of National Oceanic and Atmospheric Administration commissioned officers, and policy development) under the Act entitled "An Act to clarify the status and benefits of commissioned officers of the National Oceanic and Atmospheric Administration, and for other purposes", approved December 31, 1970 (33 U.S.C. 587–1 et seq.), and any other law involving those activities, not more than $72,084,000 for fiscal year 1992.

(b) FACILITIES.—There are authorized to be appropriated to the Secretary for acquisition, construction, maintenance, and operation of facilities of the National Oceanic and Atmospheric Administration under any law involving those activities, not more than $9,898,000 for fiscal year 1992.

(c) MARINE SERVICES.—There are authorized to be appropriated to the Secretary for carrying out marine services activities of the National Oceanic and Atmospheric Administration (including ship operations, maintenance, and support) under the Act entitled "An Act to define the functions and duties of the Coast and Geodetic Survey, and for other purposes", approved August 6, 1947 (33 U.S.C. 883a et seq.), and any other law involving those activities, not more than $65,743,000 for fiscal year 1992.

(d) AIRCRAFT SERVICES.—There are authorized to be appropriated to the Secretary for carrying out aircraft services activities of the National Oceanic and Atmospheric Administration (including aircraft operations, maintenance, and support) under the Act entitled "An Act to increase the efficiency and reduce the expenses of the Signal Corps of the Army, and to transfer the Weather Bureau to the Department of Agriculture", approved October 1, 1890 (15 U.S.C. 311 et seq.), and under any other law involving those activities, not more than $8,550,000 for fiscal year 1992.

SEC. 106. NOTICE OF REPROGRAMMING OR OBLIGATION FOR NEW PROGRAM.

(a) NOTICE OF REPROGRAMMING.—The Secretary shall not reprogram an amount greater than $500,000 of funds appropriated for an activity of the National Oceanic and Atmospheric Administration unless, not later than 30 days before the effective date of the reprogramming, the Secretary provides notice of the reprogramming to the appropriate authorizing committees, and the Committee on Appropriations, of the House of Representatives and of the Senate.

(b) NOTICE OF OBLIGATION FOR NEW PROGRAM.—The Secretary shall not obligate any amount for a program of the National Oceanic and Atmospheric Administration that is proposed or developed after the date of the enactment of this Act unless, not later than 90 days before the effective date of that obligation, the Secretary provides notice of the obligation to the appropriate authorizing committees of the House of Representatives and of the Senate, including in the notice—

(1) a description of the program;

(2) a statement of the purpose and goal of the program; and

(3) an accounting of expenditures proposed for the program.

SEC. 107. PRICE FREEZE ON CHARTS AND OTHER PRODUCTS OF NOAA.

Notwithstanding section 1307 of title 44, United States Code, the price of nautical charts or other nautical products produced or published by the National Oceanic and Atmospheric Administration and sold after the date of the enactment of this Act shall be the price of that type of chart or product on the date of enactment of this Act.

SEC. 108. REPORT ON SATELLITE OCEANOGRAPHY.

(a) IN GENERAL.—The Committee on Earth and Environmental Sciences of the Federal Coordinating Council for Science, Engineering, and Technology (hereinafter in this section referred to as the "Committee"), in consultation with Federal, academic, and commercial users of remotely sensed data, shall consider and develop detailed findings and recommendations regarding—

(1) the most urgent current needs of oceanographic researchers within the Federal Government, the academic community, and the private sector, for remote sensing capabilities and remotely sensed data, including findings regarding the present inadequacies in these capabilities and data; and

(2) the major goals of satellite oceanography for the next 10 years.

(b) REPORT.—Not later than 1 year after the date of the enactment of this Act, the Committee shall submit to the House of Representatives and the Senate a report which describes the findings of the Committee. The report shall include recommendations for, or a description of actions being taken toward—

(1) correcting inadequacies in remote sensing capabilities;

(2) improving availability of remotely sensed data; and

(3) achieving the major goals of satellite oceanography developed pursuant to subsection (a)(2).

SEC. 109. REPORT ON SATELLITE CAPABILITIES FOR FISHERIES ENFORCEMENT.

Not later than 6 months after the date of the enactment of this Act, the Under Secretary of Commerce for Oceans and Atmosphere, in consultation with the heads of other Federal agencies, shall prepare and submit to the House of Representatives and the Senate a report describing how current and planned satellite capabilities of the Federal Government can aid in the enforcement of Federal fisheries laws and the implementation of international fisheries conservation programs.

SEC. 110. COOPERATIVE INSTITUTE OF FISHERIES OCEANOGRAPHY.

(a) ESTABLISHMENT.—There is established within the National Oceanic and Atmospheric Administration a

Cooperative Institute of Fisheries Oceanography (hereinafter in this section referred to as the "Institute"), in partnership with Duke University and the Consolidated University of North Carolina.

(b) AUTHORIZATION.—There are authorized to be appropriated to the Secretary not more than $525,000 for fiscal year 1992, to remain available until expended, for use for activities of the Institute.

(c) USE OF AMOUNTS APPROPRIATED.—Amounts appropriated under the authority of subsection (b) may be used for—

(1) administration of the Institute;

(2) research conducted by the Institute; and

(3) preparation of a 5-year plan for research and for development of the Institute.

(d) REPORT.—Within one year after the date of the enactment of this Act, the Institute shall submit to the Congress and the Under Secretary of Commerce for Oceans and Atmosphere the plan developed pursuant to subsection (c)(3).

SEC. 111. AUTHORITY TO ACQUIRE REAL PROPERTY AND IMPROVEMENTS IN HAMPTON ROADS, VIRGINIA.

(a) IN GENERAL.—The Under Secretary of Commerce for Oceans and Atmosphere may acquire, by exchange or lease-purchase or both, real property and improvements thereto in the area of Newport News-Norfolk, Virginia, for the purpose of consolidating facilities of the National Oceanic and Atmospheric Administration.

(b) CONDITIONS.—The authority of the Under Secretary to acquire real property or improvements under subsection (a) shall be subject to the following conditions:

(1) All actions taken by the Under Secretary to acquire such property or improvements must be in the best interests of the United States.

(2) In any case in which such acquisition is by lease-purchase—

(A) the term of the lease may not exceed 30 years;

(B) title to such property or improvements will be transferred to the United States upon expiration of such term; and

(C) obligations of funds to carry out such lease-purchase shall—

(i) be without regard to section 1341(a)(1)(B) of title 31, United States Code, and section 3733 of the Revised Statutes of the United States (41 U.S.C. 12); and

(ii) be treated as budget authority and outlays for a fiscal year only to the extent that expenditures pursuant to such obligations are made in the fiscal year.

SEC. 112. AUDIT OF DAMAGE ASSESSMENT PROGRAM.

(a) AUDIT REQUIREMENT.—Not later than January 31 of each of 1991, 1992, 1993, and 1994, the Comptroller General shall submit to the Congress an audit of—

(1) the Damage Assessment program of the National Oceanic and Atmospheric Administration; and

(2) the Damage Assessment and Restoration Revolving Fund.

(b) AUDIT CONTENTS.—Each audit under this section shall include for the period covered by the audit—

(1) a statement of all funds appropriated to the Damage Assessment program, including—

(A) amounts appropriated directly to the Operations, Research, and Facilities Account, and

(B) amounts transferred to that account from the Damage Assessment and Restoration Revolving Fund;

(2) a statement of funds transferred to the Damage Assessment program through reprogramming of funds from other programs;

(3) an accounting of the uses of all funds available to the Damage Assessment program, including an accounting of repayments made, if any, to other programs from which funds have been reprogrammed to carry out Damage Assessment program activities; and

(4) a statement of all deposits into and transfers from the Damage Assessment and Restoration Revolving Fund.

TITLE II—NATIONAL WEATHER SERVICE

SEC. 201. OPERATIONS AND RESEARCH.

(a) There are authorized to be appropriated to the Secretary to enable the National Oceanic and Atmospheric Administration to carry out the operations and research duties of the National Weather Service, $308,065,000 for fiscal year 1992. Such duties include meteorological, hydrological, and oceanographic public warnings and forecasts, as well as applied research in support of such warnings and forecasts, but do not include duties described in section 202.

(b)(1) The Secretary shall direct the Office of the Chief Scientist of the National Oceanic and Atmospheric Administration to establish an advisory committee of tropical cyclone research experts to make recommendations for Atlantic tropical cyclone research activities and Atlantic tropical cyclone reconnaissance procedures.

(2) The Secretary, working jointly with other agencies as appropriate and utilizing the expertise of the advisory committee established under paragraph (1), shall establish a 5-year program for collecting operational and reconnaissance data, conducting research, and analyzing data on Atlantic tropical cyclones to assist the forecast and warning program and increase the understanding of the causes and behavior of Atlantic tropical cyclones.

(3) Within 120 days after the date of enactment of this Act, the Secretary shall develop and submit to the Congress a management plan for the program established under paragraph (2) which shall include organizational structure, goals, major tasks, and funding profiles for the five year duration of the program.

(c) Of the sums authorized under subsection (a) of this section, $250,000 for fiscal year 1992 are authorized to be appropriated for the purposes of implementing subsection (b) of this section.

SEC. 202. SYSTEMS ACQUISITION.

There are authorized to be appropriated to the Secretary to enable the National Oceanic and Atmospheric Administration to carry out the public warning and forecast systems duties of the National Weather Service, $209,725,000 for fiscal year 1992. Such duties include the development, acquisition, and implementation of major public warning and forecast systems.

TITLE III—NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE

SEC. 301. SATELLITE OBSERVING SYSTEMS.

(a) There are authorized to be appropriated to the Secretary to enable the National Oceanic and Atmospheric Administration to carry out its satellite observing systems duties $362,359,000 for fiscal year 1992. Such duties include spacecraft procurement, launch, and associated ground station system changes involving polar orbiting and geostationary environmental satellites and land remote sensing satellites, as well as the operation of such satellites.

(b) Of the sums authorized under subsection (a) of this section, $17,200,000 for fiscal year 1992 are authorized to be appropriated for the operation of the Landsat satellite system.

SEC. 302. ENVIRONMENTAL DATA MANAGEMENT.

There are authorized to be appropriated to the Secretary to enable the National Oceanic and Atmospheric Administration to fund those duties relating to data and information services, $35,200,000 for fiscal year 1992. Such duties include climate data services, ocean data services, geophysical data services, and environmental assessment and information services.

SEC. 303. TRANSFER OF ARCHIVING RESPONSIBILITY FOR LAND REMOTE-SENSING DATA.

(a) FINDINGS.—The Congress finds that—

(1) section 602 of the Land Remote-Sensing Commercialization Act of 1984 (15 U.S.C. 4272) directs the Secretary of Commerce to provide for the archiving of land remote-sensing data for historical, scientific, and technical purposes, including long-term global environmental monitoring;

(2) the Secretary of Commerce currently provides for the archiving of Landsat data at the Department of the Interior's EROS Data Center, which is consistent with the requirement of such section 602(g) to use existing Federal Government facilities to the maximum extent practicable in carrying out this archiving responsibility;

(3) the Landsat data collected since 1972 are an important global data set for monitoring and assessing land resources and global change;

(4) the Secretary of the Interior maintains archives of aerial photography, digital cartographic data, and other Earth science data at the EROS Data Center that also are important data sets for monitoring and assessing land resources and global change;

(5) it is appropriate to transfer authority for section 602 of the Land Remote-Sensing Commercialization Act of 1984 to the Secretary of the Interior; and

(6) the Secretary of the Interior should explore ways to facilitate the use of archiving data for research purposes consistent with other provisions of such Act.

(b) AMENDMENTS.—The Land Remote-Sensing Commercialization Act of 1984 is amended—

(1) in section 402(b)(4), by inserting "of the Interior" after "Secretary";

(2) in sections 602 (b), (c), (d), (f), and (g), by inserting "of the Interior" after "Secretary" each place it appears; and

(3) by adding at the end of section 602 the following new subsection:

"(h) In carrying out the functions of this section, the Secretary of the Interior shall consult with the Secretary to ensure that archiving activities are consistent with the terms and conditions of any contract or agreement entered into under title II, III, or V of this Act and with any license issued under title IV of this Act.".

TITLE IV—NOAA BUDGET PROCESS

SEC. 401. TWO YEAR BUDGET CYCLE.

(a) SUBMISSION OF 2-YEAR BUDGET BY PRESIDENT.—The President shall—

(1) include in the budget for fiscal year 1993 submitted to the Congress pursuant to section 1105 of title 31, United States Code, a single proposed budget for the National Oceanic and Atmospheric Administration covering fiscal years 1993 and 1994; and

(2) include in each budget submitted pursuant to that section for each odd-numbered fiscal year after fiscal year 1993 a single proposed budget for that administration covering the fiscal year for which the budget is submitted and the succeeding fiscal year.

(b) REPORT.—Not later than October 1, 1991, the Secretary shall submit to the Committee on Merchant Marine and Fisheries and the Committee on Appropriations of the House of Representatives, and to the Committee on Commerce, Science, and Transportation and the Committee on Appropriations of the Senate, a report containing—

(1) the Secretary's views on the advantages and disadvantages of operating the National Oceanic and Atmospheric Administration on a 2-year budget cycle;

(2) the Secretary's plans for converting to a 2-year budget cycle; and

(3) a description of the impediments (statutory or otherwise) to converting the operations of the National Oceanic and Atmospheric Administration to a 2-year budget cycle beginning in fiscal year 1993.

(c) BUDGET ESTIMATES.—Not later than 30 days after the date on which the President submits to the Congress a budget under section 1105 of title 31, United States Code, which includes a proposed 2-year budget for the National Oceanic and Atmospheric Administration, the Secretary shall submit to the Committee on Appropriations and the Committee on Merchant Marine and Fisheries of the House of Representatives and the Committee on Appropriations and the Committee on Commerce, Science, and Transportation of the Senate, detailed cost estimates of the fiscal years covered by that 2-year budget.

Mr. **Brown**. And now the Chair will recognize Mr. Walker for any comments he may have.

Mr. **Walker**. Thank you, Mr. Chairman.

I support the committee reporting H.R. 2011, with certain amendments. There are a couple of problems we do need to resolve. There is potentially controversial Merchant Marines and Fisheries Committee language which is not within our purview. I will offer a technical amendment which I understand has been cleared by the Chairman to strike this language without prejudice, so that we can move a vehicle to the floor.

I also will be offering an amendment along with you, Mr. Chairman, which makes a long-term commitment to the modernization of the weather service by providing the resources necessary to complete the acquisition and deployment of major components of the new system through the year 2000. While endorsing modernization with stable, secure funding, this amendment also instills discipline into the effort by capping the cost of the system and mandating its capabilities and scheduled availability.

With these amendments, I think we will have a good bill, and I ask unanimous consent that the rest of my statement be included in the record.

[The prepared opening statement of Mr. Walker follows:]

OPENING STATEMENT
HON. ROBERT S. WALKER (R-PA)
H.R. 2011, NOAA Bill
Full Committee Markup
May 8, 1991

Mr. Chairman, I support the Committee reporting H.R. 2011, with certain amendments, as it authorizes the Department of Commerce's National Oceanic and Atmospheric Administration at the level requested by the President for fiscal year 1992.

I do have a problem, however, with including potentially controversial Merchant Marine and Fisheries Committee language that is clearly not within our purview and on which, therefore, we should not act. I will offer a technical amendment which I understand has been cleared by the Chairman to strike this language without prejudice. The Merchant Marine and Fisheries Committee can, of course, present provisions for inclusion in the unified vehicle for floor consideration.

H.R. 2011, introduced by Chairman Scheuer and supported by Republican Chairman Ritter and their Environment Subcommittee provides for the desperately needed modernization of weather forecasting and warning technology in the interest of public safety and private property. Any additional requirements that stall or slow this critical process will not only cost the country more money, but lives as well. With this view, I will offer an amendment with Chairman Brown which makes the long-term commitment to modernization by providing the resources necessary to complete the acquisition and deployment of the major components of this new system through the year 2000. While endorsing modernization with stable, secure funding, this amendment also instills discipline into the effort by capping the cost of the system and mandating its capabilities and scheduled availability.

With the House-passed Budget Resolution overlooking NOAA's importance and needs, H.R. 2011 is an especially critical blueprint that we must present to the appropriators now, in advance of their funding decisions. Coming in at the requested level, H.R. 2011 is credible and fiscally responsible. Therefore, it can provide the endorsement, both by this Committee and the full House, that is so badly needed to assure adequate funding for these crucial functions.

Thank you, Mr. Chairman.

Mr. **Brown**. Without objection, so ordered.

The Chair will recognize the distinguished chairman of the Environmental Subcommittee, Mr. Scheuer.

Mr. **Scheuer**. Thank you, Mr. Chairman. I will bow to the Chairman's guidance and submit my statement for the record.

[The prepared statement of Mr. Scheuer follows:]

STATEMENT OF HON. JAMES H. SCHEUER

MARKUP OF

H.R. 2011

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AUTHORIZATION ACT OF 1991

Mr. Chairman, on April 16, 1991, the Subcommittee on
Environment approved,
by unanimous voice vote,
a subcommittee print, as amended,
authorizing appropriations for the
National Oceanic and Atmospheric Administration
for fiscal year 1992.

Furthermore, the Subcommittee ordered,

by unanimous voice vote,

that a clean bill reflecting the actions of the Subcommittee be introduced and reported to the full Committee on Science, Space, and Technology for futher consideration.

That bill, H.R. 2011, was introduced on April 23, 1991, and retained at full Committee.

H.R. 2011 authorizes appropriations for the programs of

- the National Weather Service; including the program to modernize the technology employed by the Weather Service;

- the Environmental Satellite programs of the National Environmental Satellite, Data, and Information Service, including the Geostationary weather satellites, the Polar Orbiting weather satellites, and the Landsat satellites;

- and the research activities of the Office of Oceanic and Atmospheric Research, including the global climate change research program.

H.R. 2011 also authorizes the ocean and coastal programs under the jurisdiction of the Committee on Merchant Marine and Fisheries.

Mr. Chairman, the Merchant Marine Committee is moving legislation (H.R. 2130) which is almost identical to this bill. It is our intention to reach agreement with the Merchant Marine Committee very quickly and bring a NOAA Authorization bill to the full House of Representatives.

Through this unified effort, the two authorization committees can maximize our influence with the Administration and the Appropriations Committees.

Mr. Chairman, the bill before us authorizes a total of $1,415,652,000 NOAA. This level of funding endorses the healthy increase (8%) recommended in the President's budget request.

The only change made to the President's request is the transfer of $9,171,000 from Satellite procurement to the operations of the National Weather Service. This change was necessary in order to continue operations, at current levels, for :

- the Agriculture Weather Offices;

- the Fruit Frost Warning service;

- Weather Services in support of forest fire fighting activities;

- and continuation of all the activities of the Southern Regional Weather Service Headquarters.

The bill provides adequate funding authorization for:

- continued full National Weather Service operations with simultaneous modernization of weather forecasting technology;
- all scheduled weather satellite procurements including additional funding for a 1990 launch of the Geostationary Operational Environmental Satellite to replace the weather satellite that failed last January;
- continuation and completion of the Landsat commercialization program and operational support activities;
- and expanded atmospheric research in support of the Global Climate Change program.

The details of each line item can be found on page 7 of the Subcommittee report.

While this legislation authorizes less money than I would have preferred, I do think it is a realistic given the current budget constraints.

Mr. Chairman, I would like to thank Congressman Ritter, Congressman Walker, and especially Chairman George Brown for their leadership in putting together this bipartisan package.

Mr. Chairman, that concludes the report of the Subcommittee on Environment.

Mr. BROWN. The committee will be at an immeasurable loss, not hearing the gentleman's words. But we thank him, nevertheless, and would like to recognize the ranking Republican member, Mr. Ritter.

Mr. RITTER. Thank you, Mr. Chairman. I want to commend you and the Ranking Member, Mr. Walker, as well as the Chairman of the Subcommittee on Environment, Mr. Scheuer, for your hard work in putting together H.R. 2011, the NOAA authorization for 1991. I believe the bill is a good piece of legislation. It exemplifies this Committee's continued dedication to supporting the activities of the National Oceanic and Atmospheric Administration. I am proud to lend my support to the measure before us today.

NOAA has an important role. It is the primary agency in the Federal Government responsible for the conduct of atmospheric and oceanic research and operations which contribute to a better understanding of our environment. This understanding is more important today than ever. Some of the important activities include the work of NOAA's Office of Oceanic and Atmospheric Research, which could help address some of the fundamental issues underlying an effective policy on global change.

The data obtained from NOAA satellites plays a key role in a wide range of everyday activities and was a major factor in the winning strategy of the Persian Gulf Conflict. We knew what the weather was going to be like. The National Weather Service issues forecasts, storm warnings, which save lives and help millions of Americans plan their daily activities. It is important to every Member of Congress. H.R. 2011 contains a funding level which reflects a good increase over last year's appropriations.

It also strengthens NOAA's research program in climate and global change, which will address the greatest question marks in the climate change equations: the role of the oceans and the clouds.

The bill before us today increases funding for the weather satellite programs in which the Committee has a strong interest. It does restore $9.17 million in cuts to the Weather Service Operations which had been called for in the President's budget. This includes important agricultural weather operations.

The bill also provides funds to continue the important modernization program of the Weather Service. The Weather Service still relies on technology from the era of the vacuum tube in order to gather and disseminate information. It is critical that the Weather Service obtain modern equipment, including the NEXRAD, the Next Generation Weather Radar System, that would lead to more timely and accurate weather forecasts.

As the Subcommittee Chairman has mentioned in the past, the Merchant Marine and Fisheries Committee has passed a NOAA Authorization Bill, and I, too, look forward to working with you, Mr. Chairman, and the Merchant Marine, in bringing a comprehensive NOAA authorization bill to the House floor.

Finally, I want to congratulate you, Mr. Chairman, for your efforts in bringing H.R. 2011 before us in a timely fashion. If we on this Committee are to have influence over the process by which priorities are set for R&D, we have to act with dispatch. So, in a bipartisan spirit of cooperation, we have created a NOAA authorization bill to be proud of, in time to send a signal to the rest of the

Congress that we on the Science, Space, and Technology Committee intend to be players in the setting of priorities and in the definition of appropriations.

Thank you very much, Mr. Chairman.

[The prepared statement of Mr. Ritter follows:]

STATEMENT OF HON. DON RITTER (R-PA)
H.R. 2011, NOAA AUTHORIZATION ACT OF 1991
MAY 8, 1991

THANK YOU, MR. CHAIRMAN. I COMMEND YOU AND THE RANKING MEMBER, MR. WALKER, AS WELL AS THE CHAIRMAN OF THE SUBCOMMITTEE ON ENVIRONMENT, MR. SCHEUER, FOR YOUR HARD WORK IN PUTTING TOGETHER H.R. 2011, THE NOAA AUTHORIZATION ACT OF 1991. I BELIEVE H.R. 2011 IS A FINE PIECE OF LEGISLATION, WHICH EXEMPLIFIES THIS COMMITTEE'S CONTINUED DEDICATION TO SUPPORTING THE ACTIVITIES OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION. I AM PROUD TO LEND MY SUPPORT TO THE MEASURE BEFORE US TODAY.

THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) HAS AN IMPORTANT ROLE. NOAA IS THE PRIMARY AGENCY IN THE FEDERAL GOVERNMENT RESPONSIBLE FOR THE CONDUCT OF ATMOSPHERIC AND OCEANIC RESEARCH AND OPERATIONS WHICH CONTRIBUTE TO A BETTER UNDERSTANDING OF OUR ENVIRONMENT. SOME OF THESE

IMPORTANT ACTIVITIES INCLUDE THE FOLLOWING:

o THE WORK OF NOAA'S OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH MAY HELP ADDRESS SOME OF THE FUNDAMENTAL ISSUES UNDERLYING AN EFFECTIVE PUBLIC POLICY ON GLOBAL CHANGE;

o THE DATA OBTAINED FROM NOAA SATELLITES PLAYS A KEY ROLE IN A WIDE RANGE OF EVERYDAY ACTIVITIES, AND WAS A MAJOR FACTOR IN OUR WINNING STRATEGY IN THE PERSIAN GULF CONFLICT;

o THE NATIONAL WEATHER SERVICE ISSUES FORECASTS AND STORM WARNINGS WHICH SAVE LIVES AND HELP MILLIONS OF AMERICANS PLAN THEIR DAILY ACTIVITIES.

H.R. 2011 CONTAINS A FUNDING LEVEL WHICH REFLECTS A HEALTHY INCREASE OVER LAST YEAR'S APPROPRIATIONS. H.R. 2011 ALSO STRENGTHENS NOAA'S RESEARCH PROGRAM IN

CLIMATE AND GLOBAL CHANGE, WHICH WILL ADDRESS THE GREATEST QUESTION MARKS IN THE CLIMATE CHANGE EQUATION -- THE ROLE OF THE OCEANS AND CLOUDS. THE BILL BEFORE US TODAY INCREASES FUNDING FOR THE WEATHER SATELLITE PROGRAMS, IN WHICH THIS COMMITTEE HAS A STRONG INTEREST, AND RESTORES $9.17 MILLION IN CUTS TO WEATHER SERVICE OPERATIONS WHICH HAD BEEN CALLED FOR IN THE PRESIDENT'S BUDGET.

H.R. 2011 ALSO PROVIDES FUNDS TO CONTINUE THE IMPORTANT MODERNIZATION PROGRAM AT THE NATIONAL WEATHER SERVICE. THE WEATHER SERVICE STILL RELIES ON TECHNOLOGY FROM THE ERA OF THE VACUUM TUBE IN ORDER TO GATHER AND DISSEMINATE INFORMATION. IT IS CRITICAL THAT THE WEATHER SERVICE OBTAINS MODERN EQUIPMENT, INCLUDING THE NEXRAD (NEXT GENERATION WEATHER RADAR SYSTEM), THAT WOULD LEAD TO MORE TIMELY AND ACCURATE WEATHER FORECASTS.

AS MR. SCHEUER MENTIONED, THE MERCHANT MARINE AND FISHERIES COMMITTEE HAS PASSED A NOAA AUTHORIZATION BILL. I, TOO, LOOK FORWARD TO WORKING WITH YOU, MR. CHAIRMAN, AND WITH THE MERCHANT MARINE COMMITTEE IN BRINGING A COMPREHENSIVE NOAA AUTHORIZATION BILL TO THE HOUSE FLOOR.

FINALLY, I WISH TO CONGRATULATE YOU, MR. CHAIRMAN, FOR YOUR EFFORTS IN BRINGING H.R. 2011 BEFORE US IN A TIMELY FASHION. IF WE ON THIS COMMITTEE ARE TO HAVE INFLUENCE OVER THE PROCESS BY WHICH PRIORITIES ARE SET FOR RESEARCH AND DEVELOPMENT, WE MUST ACT WITH DISPATCH. IN A BIPARTISAN SPIRIT OF COOPERATION, WE HAVE CREATED A NOAA AUTHORIZATION BILL TO BE PROUD OF...IN TIME TO SEND A SIGNAL TO THE REST OF THE CONGRESS.

THANK YOU, MR. CHAIRMAN.

Mr. Brown. Thank you very much, Mr. Ritter.

The Chair yields briefly to Mr. Scheuer.

Mr. Scheuer. Mr. Chairman, I do want to recognize the fine work of the gentleman from Pennsylvania in getting this legislation through so expeditiously, and also Mr. Walker, the ranking member of this committee. We owe them both a debt of gratitude. And of course, I congratulate you on your leadership on bringing this bill to this point.

Mr. Brown. The Chair would like to note that anything good in any of this legislation, Mr. Walker and I will take credit for. If there are any goofs, the Subcommittee chairmen will bear the full responsibility. [Laughter.]

Mr. Brown. Any further discussion before we adopt the Subcommittee report? Mr. Kopetski.

Mr. Kopetski. Thank you, Mr. Chairman.

Just briefly, for the record, I am going to support this proposal, but want the record to show I will be monitoring the transition in the modernization of the facilities and making certain that the employees of NOAA are all treated equitably in this transition phase.

Mr. Brown. The Chair shares the gentleman's concern.

Mr. Ritter. Mr. Chairman, I move the view recommended in the Subcommittee report be adopted.

Mr. Brown. You have heard the motion. Without objection, the Subcommittee report will be adopted, and the bill is open for discussion at any point. Does any member wish to be recognized?

[No response.]

Mr. Brown. If not, the bill will be open for amendments at any point.

Mr. Walker. Mr. Chairman, I have the technical amendment I mentioned previously. I understand that this is something both the Chairman of the Full Committee and Mr. Scheuer of the Subcommittee are prepared to accept. What this does is assure we do go forth with a unified approach but that we strike from the bill some sections that are exclusively in the jurisdiction of the Merchant Marine and Fisheries Committee.

I want to applaud Chairman Scheuer for the work he has done to make certain we have a bill that we can move forward as expeditiously as possible. I think this contributes to that process, and I would move the amendment.

[The amendment offered by Mr. Walker follows:]

(a)

Amendment to H.R. 2011
Offered by Mr. Walker

Strike Sections 101, 102, 107, and 110, and renumber the remaining sections accordingly.

Strike Title IV.

Mr. **Brown**. Any other comment on the amendment?

[No response.]

Mr. **Brown**. If not, the Chair will put the question. All those in favor of the technical amendment by Mr. Walker will signify by saying aye.

[Chorus of ayes.]

Mr. **Brown**. Opposed, no.

[No response.]

Mr. **Brown**. The ayes have it. The amendment is agreed to.

The second amendment is one which I am offering which is before the members. It basically is an amendment which parallels the one we offered to the NASA bill to redirect $5 million to provide funding for long lead time parts for the LANDSAT 7 program. This is a matter of merely prudent insurance, that we will continue to be able to have a functioning civil LANDSAT system, and I urge the committee members to support the amendment.

[The amendment offered by Mr. Brown follows:]

(b)

BROWCA026

AMENDMENTS TO H.R. 2011
OFFERED BY MR. BROWN

Page 5, line 4, strike ``$111,695,000'' and insert in lieu thereof ``$106,695,000''.

Page 17, line 17, strike ``$362,359,000'' and insert in lieu thereof ``$367,359,000''.

Page 17, after line 26, insert the following new subsection:

(c) Of the sums authorized under subsection (a) of this section, $5,000,000 for fiscal year 1992 are authorized to be appropriated for the procurement of long-lead parts necessary for the construction of Landsat 7.

Mr. Brown. Is there any debate? I am sure no one would want to object to a good amendment like this. The Chair will put the question. All those in favor signify by saying aye.

[Chorus of ayes.]

Mr. Brown. Opposed, no.

[No response.]

Mr. Brown. The ayes have it. The amendment is agreed to.

Mr. Scheuer has a technical amendment.

Mr. Scheuer. This is a technical amendment to correct a printing error. It is totally noncontroversial, it changes 83 to 38, an inadvertent mistake.

[The amendment offered by Mr. Scheuer follows:]

(e)

SCHEUE050

AMENDMENT TO H.R. 2011
OFFERED BY MR. SCHEUER

Page 7, line 7, strike ``$83,139,000'' and insert in lieu thereof ``$38,074,000''.

Mr. **Brown**. There must be some cryptic significance to this, but if there is no objection, the Chair will put the question. All those in favor will signify by saying aye.

[Chorus of ayes.]

Mr. **Brown**. Opposed, no.

[No response.]

Mr. **Brown**. The ayes have it, and Mr. Scheuer's amendment is adopted.

Mr. Walker and I are jointly presenting an amendment which I will recognize Mr. Walker to discuss briefly.

Mr. **Walker**. Thank you, Mr. Chairman. This is to provide the full project authorization for major components of the new weather system. This is, in a sense, a "truth-in-budgeting" amendment, providing the Congress with a total project cost for the modernization effort into the next century. The amendment endorses completion of the modernization through the procurement of the new weather satellites and the new Doppler Radar system.

However, with the annual overrun projections, it also instills some discipline into the process by holding the costs of these systems to the President's current budget estimate for completion. The Secretary is additionally required to certify that the systems will meet the specs and be delivered on time. If he can't do that, the authorizations are not available until he fully reports the problem, how he will fix it, the effect on the program and why it should continue. This Committee also has a chance, then, to more closely review the situation. This is an approach similar to that which the Committee has used in the CRAF-Casini and the SSC project, last year. I think it will help us to get some control over this massive but justified and badly needed undertaking.

[The amendment offered by Messrs. Brown and Walker follows:]

(d)

TB1001

AMENDMENTS TO H.R. 2011

OFFERED BY MR. BROWN AND MR. WALKER

Page 17, after line 26, insert the following new subsections:

(c)(1) There are authorized to be appropriated to the Secretary for all fiscal years beginning after September 30, 1992, an aggregate of $735,133,000, to remain available until expended, to complete the procurement of--

(A) Geostationary Operational Environmental Satellites I, J, K, L, and M; and

(B) the launching and supporting ground systems of such satellites.

(2) Except as provided in paragraph (3), none of the funds appropriated under paragraph (1) may be obligated until the Secretary certifies to the Congress that--

(A) the satellite instruments meet the technical performance specifications included in the satellite contract as in effect on October 1, 1990;

(B) the procurement activities described in paragraph (1) can be completed without requiring further appropriations beyond amounts authorized under paragraph (1); and

(C) the Secretary does not foresee any gaps in two-satellite service operations resulting from nonperformance of any contract for the procurement activities described in paragraph (1).

(3) If the Secretary does not make a complete certification described in paragraph (2), funds appropriated under paragraph (1) may become available for obligation 30 days after the Secretary submits to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report which describes--

(A) the circumstances which prevent the certification under paragraph (2) from being complete;

(B) remedial actions undertaken or to be undertaken with respect to such circumstances;

(C) the effects of such circumstances on the launch schedule and satellite coverage; and

(D) a justification for proceeding with the program, if appropriate.

(d)(1) There are authorized to be appropriated to the Secretary for all fiscal years beginning after September 30, 1992, an aggregate of $272,758,000, to remain available until expended, to complete the procurement of--

(A) Polar Orbiting Environmental Satellites I, J, K, L, and M; and

(B) the launching and supporting ground systems of such satellites.

(2) Except as provided in paragraph (3), none of the funds appropriated under paragraph (1) may be obligated until the Secretary certifies to the Congress that--

(A) the satellite instruments meet the technical performance specifications included in the satellite contract as in effect on October 1, 1990;

(B) the procurement activities described in paragraph (1) can be completed without requiring further appropriations beyond amounts authorized under paragraph (1); and

(C) the Secretary does not foresee any gaps in two-satellite service operations resulting from nonperformance of any contract for the procurement activities described in paragraph (1).

(3) If the Secretary does not make a complete certification described in paragraph (2), funds appropriated under paragraph (1) may become available for obligation 30 days after the Secretary submits to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report which describes--

(A) the circumstances which prevent the certification under paragraph (2) from being complete;

(B) remedial actions undertaken or to be undertaken with respect to such circumstances;

(C) the effects of such circumstances on the launch schedule and satellite coverage; and

(D) a justification for proceeding with the program, if appropriate.

Page 17, line 2, insert ``(a)'' before ``There are authorized''.

Page 17, after line 8, insert the following new subsections:

(b)(1) There are authorized to be appropriated to the Secretary for all fiscal years beginning after September 30, 1992, an aggregate of $196,956,000, to remain available until expended, to complete the acquisition and deployment of the Next Generation Weather Radar system, and to cover all associated activities (including program management and operations and maintenance through September 30, 1996).

(2) Except as provided in paragraph (3), none of the funds appropriated under paragraph (1) may be obligated until the Secretary certifies to the Congress that--

(A) the radars meet the technical performance specifications included in the system contract as in effect on October 1, 1990;

(B) the system contract is viable, and the Secretary does not foresee any circumstances which would make its fulfillment impossible;

(C) the system software is functional;

(D) the system can be fully deployed, sited, and operational without requiring further appropriations beyond amounts authorized under paragraph (1); and

(C) the Secretary does not foresee any further delays in the system deployment and operation schedule.

(3) If the Secretary does not make a complete certification described in paragraph (2), funds appropriated under paragraph (1) may become available for obligation 30 days after the Secretary submits to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report which describes--

(A) the circumstances which prevent the certification under paragraph (2) from being complete;

(B) remedial actions undertaken or to be undertaken with respect to such circumstances;

(C) the effects of such circumstances on the deployment and operation schedule and radar coverage; and

(D) a justification for proceeding with the program, if appropriate.

(c)(1) There are authorized to be appropriated to the Secretary for all fiscal years beginning after September 30, 1992, an aggregate of $51,668,000, to remain available until expended, to complete the acquisition and deployment of the Automated Surface Observing Systems, and to cover all associated activities (including program management and operations and maintenance through September 30, 1996).

(2) Except as provided in paragraph (3), none of the funds appropriated under paragraph (1) may be obligated until the Secretary certifies to the Congress that--

(A) the systems meet the technical performance specifications included in the system contract as in effect on April 1, 1991;

(B) the systems can be fully deployed, sited, and operational without requiring further appropriations beyond amounts authorized under paragraph (1); and

(C) the Secretary does not foresee any further delays in the systems deployment and operation schedule.

(3) If the Secretary does not make a complete certification described in paragraph (2), funds appropriated under paragraph (1) may become available for obligation 30 days after the Secretary submits to the Committee on Science, Space, and Technology of the House of Representatives and the

Committee on Commerce, Science, and Transportation of the Senate a report which describes--

(A) the circumstances which prevent the certification under paragraph (2) from being complete;

(B) remedial actions undertaken or to be undertaken with respect to such circumstances;

(C) the effects of the circumstances on the systems deployment and operation schedule and systems coverage; and

(D) a justification for proceeding with the program, if appropriate.

Mr. **Brown**. Thank you very much. The Chair concurs completely in the statement Mr. Walker has made and urges the adoption of the amendment. Is there further discussion?

[No response.]

Mr. **Brown**. If not, the Chair will put the question. All those in favor signify by saying aye.

[Chorus of ayes.]

Mr. **Brown**. Opposed, no.

[No response.]

Mr. **Brown**. The ayes have it. The amendment is agreed to.

Mr. Traficant, I see you have an amendment here.

Mr. **Traficant**. Mr. Chairman, I ask unanimous consent that my three amendments be offered en bloc.

Mr. **Brown**. Withdrawn—or offered en bloc? [Laughter.]

Mr. **Brown**. Without objection, Mr. Traficant's amendments will be offered en bloc.

Would you like to explain them briefly, Mr. Traficant.

Mr. **Traficant**. No, Mr. Chairman, I would like them passed over without prejudice and without debate.

These are the same amendments that have been offered to many pieces of legislation. First it would restrict contract awards when such action is necessary as cited by the President under existing trade law for illegal violations, the second would prohibit fraudulent use of the Made in America labels, and the last one would provide for an opportunity for "Buy American" requirements that could be waived by international law, according to existing law.

[The amendments offered en bloc by Mr. Traficant follow:]

(e)

TRAFIC039

AMENDMENT TO H.R. 2011
OFFERED BY MR. TRAFICANT

Page 22, after line 4, insert the following new title:

TITLE V--BUY AMERICA PROVISIONS

SEC. 501. BUY AMERICA PROVISIONS.

(a) RESTRICTIONS ON CONTRACT AWARDS.--No contract or subcontract made with funds authorized under this Act may be awarded for the procurement of an article, material, or supply produced or manufactured in a foreign country whose government unfairly maintains in government procurement a significant and persistent pattern or practice of discrimination against United States products or services which results in identifiable harm to United States businesses, as identified by the President pursuant to subsection (g)(1)(A) of section 305 of the Trade Agreements Act of 1979 (19 U.S.C. 2515(g)(1)(A)). Any such determination shall be made in accordance with such section 305.

(b) PROHIBITION AGAINST FRAUDULENT USE OF ``MADE IN AMERICA'' LABELS.--If it has been finally determined by a court or Federal agency that any person intentionally affixed a label bearing a ``Made in America'' inscription, or an inscription with the same meaning, to any product sold in or shipped to the United States that is not made in the United

States, that person shall be ineligible to receive any contract or subcontract from the National Oceanic and Atmospheric Administration, pursuant to the debarment, suspension, and ineligibility procedures in subpart 9.4 of chapter 1 of title 48, Code of Federal Regulations.

(c) BUY AMERICAN REQUIREMENT.--(1) The Secretary is authorized to award to a domestic firm a contract for the purchase of goods that, under the use of competitive procedures, would be awarded to a foreign firm, if--

(A) the final product of the domestic firm will be completely assembled in the United States;

(B) when completely assembled, more than 50 percent of the final product of the domestic firm will be domestically produced; and

(C) the difference between the bids submitted by the foreign and domestic firms is not more than 6 percent.

(2) This subsection shall not apply to the extent to which--

(A) in the opinion of the Secretary, after taking into consideration international obligations and trade relations, such applicability would not be in the public interest;

(B) in the opinion of the Secretary, after consultation with the Secretary of Defense, compelling national security considerations require otherwise; or

(C) the President determines that such an award would be in violation of the General Agreement on Tariffs and Trade or an international agreement to which the United States is a party.

(3) This subsection shall apply only to contracts made for which--

(A) amounts are authorized by this Act to be made available; and

(B) solicitations for bids are issued after the date of enactment of this Act.

(4) The Secretary, before January 1, 1993, shall report to the Congress on contracts covered under this subsection--

(A) entered into with foreign firms pursuant to a determination made under paragraph (2) of this subsection; and

(B) awarded to domestic firms pursuant to paragraph (1) of this subsection, in fiscal years 1991 and 1992.

(5) For the purposes of this subsection--

(A) the term ``domestic firm'' means a business entity that is incorporated in the United States and that conducts business operations in the United States; and

(B) the term ``foreign firm'' means a business entity not described in subparagraph (A).

Mr. **Brown**. The Chair thanks the gentleman for his brief explanation. The Chair would like to state that these amendments are no worse than the previous ones he submitted and would urge their adoption.

Is there any objection to the amendments from Mr. Traficant?

[No response.]

Mr. **Brown**. If not, the amendments will be considered approved.

Mr. Perkins, would you like to present your amendments?

Mr. **Perkins**. The amendments I am offering this morning with the Chairman's support will go a long way towards ensuring the modernization and associated restructuring of the National Weather Service will not lead to the degradation of weather services anywhere in the United States.

I had originally hoped for more stringent language in order to curtail severely the Weather Service's and OMB's discretion over decommissioning the weather facilities, but I have been led to see the wisdom of a more modest approach. In that vein, we will try to explain briefly the amendments that are in front of you today.

Mr. **Walker**. Parliamentary inquiry. Is the gentleman offering the two amendments en bloc——

Mr. **Perkins**. Have they been distributed? Hand them out. En bloc would be fine, yes.

Mr. **Brown**. The gentleman requests unanimous consent to consider them en bloc. Would the staff make sure each member has a copy of the substitute, the language is different from the amendment which is in the members' packages. We would like both amendments to be distributed at this point.

The gentleman may proceed with an explanation of both the modified amendments.

Mr. **Perkins**. I thank the Chairman. My first amendment, the section on public institution liaison and community preparedness, implements a crucial recommendation of the National Research Council's committee on the modernization of the National Weather Service.

> To maintain liaison with public institutions and to assist in community preparedness, the Federal Government should consider retaining with limited staff most weather services offices now planned for closure.

The two-year length of the requirement was established to ensure these services are not degraded during the restructuring associated with the modernization of the National Weather Service.

The second amendment on weather radar removal and deactivation ensures that there will be an independent evaluation of the Weather Service's certification procedures for decommissioning facilities at sites for which the National Academy of Sciences believes to be possibly unsafe. In offering this amendment, I do not wish to impugn the integrity of the National Weather Service by mandating an outside study. On the other hand, it does recognize the National Weather Service personnel involved in developing and deploying NEXRAD will be incapable of viewing NEXRAD with sufficient skepticism. In the words of the National Research Council's Committee on the Modernization of the National Weather Service, To increase the credibility of the certification process in the eyes of user groups and Congress, it may be appropriate at some stage to involve an independent evaluation of the statistical and analytical measures developed during the initial operation of the WFOs supplied to each specific certification.

Those are basically the two amendments we have in front of us today.

[The amendments offered en bloc by Mr. Perkins follow:]

PERKIN014

AMENDMENT TO H.R. 2011
OFFERED BY MR. PERKINS

Page 17, after line 8, insert the following new section:

SEC. 203. WEATHER RADAR REMOVAL OR DEACTIVATION.

(a) As part of its review of the National Weather Service's procedure for making certifications described in section 408(b) of the National Aeronautics and Space Administration Authorization Act, Fiscal Year 1989, the National Academy of Sciences shall identify those affected areas for which there is a significant doubt that the Secretary will be able to make such certification. Within 180 days following a certification for an area identified by the National Academy of Sciences, the Comptroller General of the United States shall submit a report reviewing such certification to the Committee on Commerce, Science, and Transportation of the Senate and the Committee of Science, Space, and Technology of the House of Representatives.

(b) Section 408(a) of the National Aeronautics and Space Administration Authorization Act, Fiscal Year 1989 is amended by inserting ``or decommission any National Weather Service radar (except for the purposes of upgrading such radar on-site)'' after ``Service Forecast Office''.

(c) Section 408(b) of the National Aeronautics and Space

Administration Authorization Act, Fiscal Year 1989 is amended--

(1) by inserting ``or decommission any National Weather Service radar (except for the purposes of upgrading such radar on-site)'' after ``any such office'';

(2) by amending paragraph (3) to read as follows:

``(3) evidence, based on a site-specific operational demonstration of modernized National Weather Service operations, including the Next Generation Weather Radar, for each office to be closed, consolidated, automated, or relocated, or each National Weather Service radar to be decommissioned (except for the purposes of upgrading such radar on-site), which supports the conclusion that no degradation in services will result from such action.''; and

(3) by inserting after paragraph (3) the following: ``A certification under this subsection shall be initially prepared by the meteorologist-in-charge at the office to be closed, consolidated, automated, or relocated, and the Secretary shall identify and explain any substantive differences between the certification as prepared by the meteorologist-in-charge and as submitted to the Committees under this subsection.''.

PERKIN011

AMENDMENT TO H.R. 2011
OFFERED BY MR. PERKINS

Page 17, after line 8, insert the following new section:

SEC. 203. PUBLIC INSTITUTION LIAISON AND COMMUNITY PREPAREDNESS.

In order to maintain liaison with public institutions, and to assist in community preparedness, the Secretary shall provide at least one National Weather Service liaison officer for each area receiving such public institution liaison and community preparedness services, as of the date of enactment of this Act, from a Weather Service Office (WSO), a Weather Service Meteorological Observatory (WSMO), or an Agricultural Weather Service Center (AWSC). Such liaison officer shall be provided for at least two years after the WSO, WSMO, or AWSC is closed, consolidated, automated, or relocated. The Secretary shall provide such areas with sufficient personnel to ensure that the modernization and associated restructuring of the National Weather Service do not result in a degradation in the level of public institution liaison and community preparedness services offered to such areas.

Mr. **Walker**. Would the gentleman yield?

Mr. **Perkins**. I would be pleased to yield.

Mr. **Walker**. I thank the gentleman for yielding. I certainly can accept the language the gentleman has put together in most senses, but we have found one problem with language and would ask for a one-word change. Where the gentleman has "decommissioned" in his second amendment, I am wondering if we can put in the word "remove." I don't think it was the gentleman's intention to stop the Weather Service from shutting down an old radar while they test a new one, yet this language he now has would have that effect.

So, I am wondering if we can get that one change. Then I will have no problem with the language.

Mr. **Perkins**. I would be pleased to let staff work that out with technical amendments. We suggested the word "deactivate." I don't anticipate any problems, and certainly I go along.

Mr. **Walker**. Could we ask unanimous consent, for the purposes—since we are marking it up right now, that the word "remove" be substituted for the word "decommissioned"?

Mr. **Perkins**. I would have no problems particularly with that, with the understanding that—I would actually prefer it if there was some way we could make staff technical changes, where we could look at that, because there are a couple of questions I have about "remove" that we would like to look at.

Mr. **Walker**. The problem is that we are now marking it up. I would like to be able to be in a position of accepting the gentleman's amendment. I think it goes a long way toward giving us some oversight, now, that is badly needed and will be very useful. But, that word does in fact provide some real problems. I am perfectly willing to look, before we go to the floor, to see whether there is another word, but, for right now, the word that is in there, "decommissioned," is in fact a problem.

Mr. **Perkins**. Would you support "deactivate"?

Mr. **Walker**. Okay. I understand from Counsel the problem that "deactivate" means the same thing as "decommission." That would cause problems in terms of the Weather Service moving forward. That's the problem.

Mr. **Brown**. The Chair is going to suggest that we use the term "remove" and that we either define it in report language or we modify it when we merge our language with the Merchant Marine and Fisheries Language, and that the rights of the gentleman be protected in any event.

Mr. **Walker**. That would certainly——

Mr. **Brown**. We cannot equivocate in terms of adopting one word or another at this point.

Mr. **Perkins**. Under those circumstances, I have no objection.

Mr. **Brown**. Without objection, the suggested amendment of the gentleman from Pennsylvania is adopted, and he enthusiastically then supports the bill.

Mr. **Ritter**. Would the gentleman yield? I want to commend the gentleman from Kentucky for focusing on this issue. I think it is important to all of us, and I think he has provided some leadership here. I want to say I support his changes in this amendment and hope to work out this slight language change on the way to passage.

Mr. **Brown**. The Chair appreciates the gentleman's comments. The Chair would just like to state that he has reviewed the amendments of the gentleman from Kentucky, and they are actually intended to strengthen the purposes of existing law, the language of existing law, which requires that there be no diminution in services as a result of the adoption of the new system, which we all agree is extremely important and necessary.

The gentleman from Kentucky does have a slight degree of distrust, whether or not the intent of the law would be faithfully carried out, and seeks some additional protection, which I think is reasonable up to a point. The point being, that if we carry this too far, it would invite a Presidential veto, which neither of us wishes to see, and we will negotiate those shoals extremely carefully at the appropriate time. I think everyone will emerge satisfied with the results.

Is there any further discussion on the amendment of the gentleman from Kentucky?

[No response.]

Mr. **Brown**. If not, the Chair will put the question on the two amendments en bloc. All those in favor will signify by saying aye.

[Chorus of ayes.]

Mr. **Brown**. Opposed, no.

[No response.]

Mr. **Brown**. The ayes have it, the amendments are agreed to.

There is one final amendment which will be offered by Mr. Lewis.

Mr. **Lewis**. Thank you, Mr. Chairman. The amendment before the Committee, which adds a new Section, Title V, is simple in nature. It expands the five-year hurricane research program already in H.R. 2011, Section 201(b)(2), to include the Department of Defense, as specified in duties of DOD, and the Department of Commerce. The responsibility for flying the WC140 hurricane surveillance aircraft belongs to the Air Force. Therefore, if a comprehensive, five-year research program is to be successful, it must have the participation of both the Departments of Commerce and Defense.

This is similar to an amendment that passed the Committee and House last Congress. The only reason it was not introduced at Subcommittee markup was to make sure the Armed Services Committee was supportive and would not seek referral of this legislation. I have the assurances from the Subcommittee Chairman of jurisdiction and, through him, the Committee Chairman, that there will be no jurisdictional problems as a result of this amendment.

I want to thank the Environment Subcommittee Chairman, Mr. Scheuer, for his leadership in having a field hearing on hurricane surveillance in Florida and for including provisions on hurricane research advisory committees in this legislation.

Moreover, this would not have been possible without the support and assistance of the Subcommittee Ranking Member, Mr. Ritter. I also want to recognize the efforts of the Subcommittee staff of the Environment Subcommittee who worked long and hard on this legislation—Curt Stanford on the majority staff and Joe Eisen on the minority staff. I want to commend the Chairman of this Committee, Mr. Brown, and the Ranking Member, Mr. Walker, for their support and leadership.

I ask unanimous consent, Mr. Chairman, that the remainder of my statement be included in the record.

[The prepared statement and amendment offered by Mr. Lewis follows:]

THE HONORABLE TOM LEWIS
MARKUP OF H.R. 2011, THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AUTHORIZATION ACT OF 1991

MAY 8, 1991

This landmark Tropical Cyclone Research Program includes a five-year joint federal research effort with the Departments of Defense and Commerce as co-leaders. The goal is to begin the first coordinated federal research program that will study technologies to improve the accuracy of predicting the precise location where hurricanes will hit land.

Expert witnesses testifying at the Environment Subcommittee hearing, April 8, 1989 in West Palm Beach, Florida, on hurricane forecasting and reconnaissance, that the accuracy of hurricane prediction had not improved since the 1960's. Several reasons where given for this lack of progress including the lack of outside scientific peer review to assess the strengths and weaknesses of research programs and insufficient funding for many of the research programs.

In response to these concerns, the legislation in Section 201(b) directs the Secretary of Commerce establish a standing committee of tropical cyclone research experts who will provide NOAA with independent scientific advise and recommendations to improve its hurricane reconnaissance and hurricane research programs. Furthermore, in Title V, the Secretary is directed to develop a 5-year tropical storm research program, drawing on the expertise of the advisory committee and other agencies. The Air Force manages the WC-130 hurricane surveillance aircraft program. Therefore, the long-range plan of the Air Force WC-130 program will be an integral part of the

5-year tropical storm research program. This means that the Air Force cannot withdraw the WC-130 surveillance aircraft from this joint effort without Congressional approval.

Moreover, the legislation authorizes $250,000 for 1992 to fund the tropical cyclone advisory committee.

Thank you Mr. Chairman.

(h)

TB1000

AMENDMENT TO H.R. 2011
OFFERED BY MR. LEWIS OF FLORIDA

Page 22, after line 4, insert the following new title:

TITLE V--TROPICAL CYCLONE RESEARCH PROGRAM

SEC. 501. SHORT TITLE.

This title may be cited as the ``Tropical Cyclone Research Act of 1991''.

SEC. 502. FINDINGS.

The Congress finds that--

(1) many areas of the United States, including those bordering the Atlantic Ocean and Gulf of Mexico, rely on data provided by the Department of Defense through the Air Force WC-130 weather reconnaissance aircraft to predict the intensity, speed, and direction of movement of tropical cyclones, including hurricanes and tropical storms;

(2) these same areas also rely on data collected by the Department of Commerce through the National Oceanic and Atmospheric Administration's satellite, radar, aircraft, and buoy technologies to predict tropical cyclone behavior and to conduct research on improving forecasts and warnings;

(3) satellites, including the Geostationary

Operational Environmental Satellites, are an important source of tropical cyclone information, but they cannot provide the same quality of information as is supplied by weather reconnaissance aircraft;

(4) there is currently only one Geostationary Operational Environmental Satellite positioned over the United States and the loss of its ability to collect data would severely restrict tropical cyclone information gathering; and

(5) a vigorous research program in tropical cyclone behavior and forecasting is important if the accuracy of prediction of tropical cyclones is to be significantly improved.

SEC. 503. ESTABLISHMENT OF PROGRAM.

The Secretary of Defense and the Secretary of Commerce shall establish a five-year joint program which expands the plan established in section 201(b) for collecting operational and reconnaissance data, conducting research, and analyzing data on tropical cyclones to assist the forecast and warning program and increase the understanding of the causes and behavior of tropical cyclones.

SEC. 504. RESPONSIBILITIES.

(a) The Secretary of Defense shall have the responsibility for maintaining, flying, and funding tropical cyclone reconnaissance aircraft to accomplish the program established under section 201(b)(2) and to transfer the data to the Secretary of Commerce, unless a joint agreement is reached, with the approval of both the transfer of such responsibility to an appropriate Federal agency or department.

(b) The Secretary of Commerce shall have the responsibility of funding and carrying out data gathering and research by remote sensing, ground sensing, and other technologies necessary to accomplish the program established under section 503.

SEC. 505. MANAGEMENT PLANS.

(a) The Secretary of Defense and the Secretary of Commerce shall jointly develop, and, within 120 days after the date of enactment of this Act, submit to the Congress, a management plan for the program established under section 503 and section 201(b), which shall include organizational structure, goals, major tasks, and funding profiles for the five-year duration of the program.

(b) The Secretary of Defense and the Secretary of Commerce shall jointly develop, and, within four years after the date of enactment of this Act, submit to the Congress, a management plan providing for continued tropical cyclone surveillance and reconnaissance which will adequately protect the citizens of the coastal areas of the United States.

(c) The management plan and program shall provide for a minimum of the same level and quality of protection as the current tropical cyclone surveillance and reconnaissance program. The management plan and program shall in no way allow any reduction in the level, quality, timeliness, sustainability and area served, including the Hawaiian Islands, of both the existing principal and backup severe storm reconnaissance and tracking systems.

Mr. **Brown**. Without objection.

Mr. **Scheuer**. I want to commend my colleague from Florida for his determined leadership on this matter, spanning a number of years, to make a cost-effective use of military aircraft in carrying out this research. The aircraft have to come from someplace, and there are not enough of them.

It is certainly high time that our country should make the determination that military aircraft, when they are not involved in combat or other missions, should cooperate in the mission of NASA and NOAA and the mission of hurricane research. It is a cost-effective use of our military capability and very much in the public interest, and the gentleman has provided really terrific leadership over a number of years to make sure that is done, and I congratulate him.

Mr. **Lewis**. I thank the gentleman for his comments.

Mr. **Brown**. Is there any further discussion or debate on the amendment offered by the gentleman from Florida?

If not, the Chair will put the question. All those in favor of the amendment will signify by saying aye.

[Chorus of ayes.]

Mr. **Brown**. Opposed, no.

[No response.]

Mr. **Brown**. The ayes have it, the amendment is agreed to.

Mr. Scheuer is recognized for a pro forma amendment.

Mr. **Scheuer**. Mr. Chairman, I move to strike the text of all after the enacting clause of the bill and to substitute therefore the text of the bill as amended by this committee.

Mr. **Brown**. You have heard the motion. All those in favor signify by saying aye.

[Chorus of ayes.]

Mr. **Brown**. Opposed, no.

[No response.]

Mr. **Brown**. The ayes have it. The amendment is agreed to.

Mr. **Walker**. Mr. Chairman, I have some report language here that goes hand in hand with the amendment adopted earlier regarding the complete project authorization for Weather Service modernization, for the projects not yet under the procurement contract, namely the Advanced Weather Interactive Processing System, and the follow on. The existing estimates are subject to legitimate change, due to design and technical development changes.

Therefore, this language merely requires that this Committee be kept fully up to date and informed of the project progress and all changes.

[The report language offered by Mr. Walker follows:]

(a)

REPORT LANGUAGE

Offered by Mr. Walker to H.R. 2011

The estimated total cost for a follow-on Polar Orbiting Environmental Satellite system after NOAA-M is $726,425,000. The estimated total cost for the Advanced Weather Interactive Processing System/NOAAPORT is $467,211,000. However, these systems are in the development phase and are not yet under production and deployment contract. However, should these systems' budget, capability and schedule estimates change, the Committee should be notified immediately.

Mr. **Brown**. Has a copy of that language been distributed to the members? It is in the package. Is there any debate on the language?

[No response.]

Mr. **Brown**. If not, without objection, the report language will be agreed to.

Mr. Perkins, do you have some proposed report language with regard to your two amendments?

Mr. **Perkins**. Yes, I do, Mr. Chairman. I understand there will probably be some revisions in the report language as well. Without objection, I would like to have the committee's consent to have our staff make the necessary technical changes.

Mr. **Brown**. The Chair is confident that the report language offered by the gentleman as modified as a result of our discussion is appropriate and recommends its adoption. If there are no objections from any members of the committee, the proposed language will be considered as adopted.

That concludes all of the amendments and report language proposals that the Chair is aware of. Is there any that he is unaware of?

Mr. **Walker**. Mr. Chairman, I move the Committee report the bill, H.R. 2011 as amended, and to instruct the staff to prepare a legislative report, to make the technical and conforming amendments, and that the Chairman take all necessary steps to bring the bill to the House for consideration.

Mr. **Brown**. You have heard the motion. Any debate? If not, the Chair will put the question. All those in favor signify by saying aye.

[Chorus of ayes.]

Mr. **Brown**. Opposed, no.

[No response.]

Mr. **Brown**. The ayes have it, and the motion is agreed to.

That concludes the business of the committee in ample time to go hear General Schwartzkopf. The Chair expresses deep appreciation to all the members for their fine work.

[Whereupon, at 10:54 a.m., the committee adjourned, to reconvene at the call of the Chair.]

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